

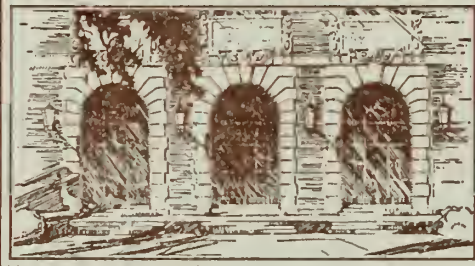
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STATE-REGIONAL LAND USE PLANNING STUDIES

Volume Two -- Selected Issues in Land Use
Management in SCIR

Overview of Task Force Program

Section One Summary

Kathi Ingrish

Reference Maps

Economic Development and Land Use

Jeff Coleman

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Luba Bozinovich

Section Two

Intergovernmental Approaches to Water Supply

Larry Debb

State-Regional Land Use Planning Task Force December 1975
Department of Urban and Regional Planning, University of Illinois

OVERVIEW OF THE TASK FORCE PROGRAM

3-5

State-Regional Land Use Planning

During the fall semester 1975 a Task Force of ten undergraduate and graduate students of Urban and Regional Planning conducted a series of exploratory studies focused on state and regional land use planning. This Task Force was under the general guidance of Professor Louis Wetmore and Teaching Assistant Charles Cumby.

This exploratory workshop developed several studies which are published in three volumes. The workshop also defined a set of focused studies for the spring semester at both the state and regional levels. The set of reports will provide important background for the spring workshop.

Without these materials and without the conceptual framework devised by the fall workshop the work program for the spring workshop could not have been formulated or carried out. The results of the spring workshop are expected to be relatively definitive procedures for the land use plan by the State of Illinois and for regional land use planning by the South Central Illinois Region.

The fall workshop had the cooperation and critical comment of Fred Walker, Director of the South Central Illinois Regional Planning and Development Commission; of Laird Starrick, Land Use Planner for the Department of Local Government Affairs; and Joseph Marinich, Executive Director of the Council of State Community Affairs Agencies.

On occasions during the fall semester the Task Force reviewed materials with Walker and Starrick. At a major review session on November 21st Walker, Starrick and Marinich gave essential guidance in formulating the spring workshop program.

The Three-Stage Work Program. The fall workshop was organized in three separate stages. At the end of each stage the work program for the next stage was formulated. At the end of the third stage the work program for the spring workshop was defined. In other words, each stage comprised a set of studies which explored the broad question of state and regional land use planning responsive to the HUD requirements that each state and each region have a completed land use plan and policies by August of 1977.

Stage I resulted in a set of reports on September 26th which analyzed the requirements for land use planning as a basis for policy decisions in housing, transportation, and water resource development. These are three of the nine areas of concern which HUD requires be considered in comprehensive land use planning.

Volume One incorporates several papers that deal with regional land use planning models and work program procedures. This volume was edited by Joanne Malinowski from papers by Michael Steele, Larry Debb, Yvonne Taylor, Joe Frank, Kathi Ingrish, David Behr and Luba Bozinovich. The graphics were prepared by David Behr.

Volume Two comprises several papers focused on urban development and resource conservation questions in Effingham County which is representative of the three-county South Central Illinois Region. This volume was edited by Kathi Ingrish and contains papers by Kathi Ingrish, Luba Bozinovich, Jeff Coleman and Larry Debb. The graphics were prepared by Jeff Coleman.

Volume Three comprises three papers which look at the variety of sub-state regional situations. Recognition of the range of metropolitan, urbanizing and rural regions is essential to a workable state/regional land use planning procedure. The volume was edited by Mitchell Burack from papers by David Behr, Joanne Malinowski and Mitchell Burack.

Volume Four comprises the work program for the spring semester. The initial document is the Decentralized Model for state/regional land use planning evolved from the November 21st seminar. This provides the broad conceptual framework for the state level and regional level sections of the spring study program.

The state level study program, and the regional level program of studies, are outlined. The final sections of this volume detail the internal operations of the workshop and schedule the seminars and two meetings for final presentations.

The content of this volume was edited by Michael Steele from materials developed by Steele, Charles Cumby and Louis Wetmore. These materials were reviewed by and adjusted as a result of constructive criticism from Laird Starrick and Fred Walker.

Reproduction and assembly of the final reports were directed by Charles Cumby and accomplished by Luba Bozinovich, Yvonne Taylor, and Larry Debb.

In each case appropriate models for planning were identified and analyzed as to the land use inputs required. In each case the substantive issues and the status of plans in the South Central Illinois Region were appraised.

Stage I provided an essential orientation for the Task Force. All participants became familiar with a variety of plan-making models and the significance of the HUD requirements. The field trip to the Regional Commission office in Salem gave insights into the character of the region and its cities.

Stage II. The second stage defined four next step study areas. The first two studies devised alternative models for regional land use planning. The third study devised a broad framework for relating state and regional land use planning. The fourth study area analyzed approaches to defining a regional land use planning work program.

During this second stage all of the studies were on a team basis and resulted in a series of conceptual frameworks.

Stage III. The third stage began at the end of October and continued through November. Individual studies were pursued by the ten members of the Task Force. Each study was aimed at analysis of a particular substantive or procedural question which had been identified in Stage II.

During the last two weeks of the semester these papers were organized in the form of an oral/graphic presentation. One presentation was directed to the South Central Illinois Regional Commission. Because of bad weather the report to the Commission was deferred but will be made in January.

Oral reports were prepared by Joe Frank for the papers in Volume Two; Larry Debb for the study on Water Supply Procedures; and by Joanne Malinowski for the content of Volume One.

The report to the Commission and a summary report to the professional advisers were presented at the meeting on November 21st. From that meeting and critique the spring workshop program was defined.

Subsequent to the meeting the Task Force defined three volumes of papers which were to be edited and organized for reproduction. These edited volumes comprise papers developed in the second and third stages.

SECTION 1

Summary

Opening Summary

The three studies in this report are concerned with factors relating to present and future land use in SCIR. Each study looks at land use in the region with the assumption that urban expansion will be taking place and imply that by examining this expected growth the region will be better prepared to supply needed services and conserve certain lands from development. The first paper studies the present land use distribution and growth projections and how they are determined by economic considerations. The next study focuses on agricultural land, using Effingham County as an example. It describes the impacts that can be expected to surface when any land use changes occur, and lists possible alternatives to help guide future development of land uses. The last paper, also featuring Effingham County, studies the possible impacts and benefits of maximum water reservoir potentials. These studies are not complete in themselves; rather, they are examples of how to approach these and related topics that concern changing land use.

The first report presents economic factors which have pertinent effects upon the intended use of land. It begins by showing the present patterns of land use for the region and growth projections for two of the three counties. The two dominating features of growth in the region are: 1) the present patterns of existing urban centers, and 2) the development of transportation. Existing land use is primarily agricultural, and the area is well-adapted to such usage. 77% to 80% of all agricultural land in the three counties is used for crop production. The growth projections, if fulfilled as shown, will cause substantial conflict of land use, since the projected development will tend to take over present crop lands. As shown in Table 2 of this report, urban uses now account for very slight amounts of land compared to total county acreages, but if the present patterns continue they will cause significant alterations in future land use. Each type of land use has economic criteria that allow or limit them in specific areas. Some of these criteria are listed in this report.

The second report concerns itself with the major potential land use problem in SCIR -- the use of agricultural lands -- as identified in the first report. Effingham County is used as a specific example of the region. After discussing the current status of land use in the county, areas of concern can be identified. They include: water resources, expansion of agricultural land, transportation, urban development, and energy development on undeveloped land. The degree of impact each of these has on land varies from one type of rural land use to another. A number of instruments are available, ranging from individually imposed restrictions to state or federal incentives to guide the changes that are likely to occur on these lands. These tools are broadly divided into two levels -- local/region, and regional/state/federal. By acting now, the county or the region may adopt as policy one or more of these tools as a beginning effort to guide growth and protect agricultural land.

The final report also focuses in Effingham County, but it is concerned with the water potential of the county, and on the impacts this development will have on other resources. The Water Survey identified eight possible surface water reservoirs sites in Effingham County. The actual area covered by all eight sites would be approximately 2,500 acres. Recommended total acquisition area is shown as three times the pool area, or 7,500 acres. Most of this area is presently woodland, and totals about 2% of total area of the county. It is calculated that nearly 14.8 million gallons per day could be produced by these reservoirs, thus allowing the county to support a maximum population of almost 150,000 with moderate water use. A limit such as this may suggest further land use controls be implemented so that the maximum population will not be exceeded.

These reports, then, introduce certain variables that affect rural and urban land uses in SCIR. They are not complete themselves, nor are they the only factors to be considered. They do give an introductory overview of the types of concerns that must be faced if the region wishes to have control over its own resources so as to make the best use of them.

Table of Maps

Map 1- Location of SCIR

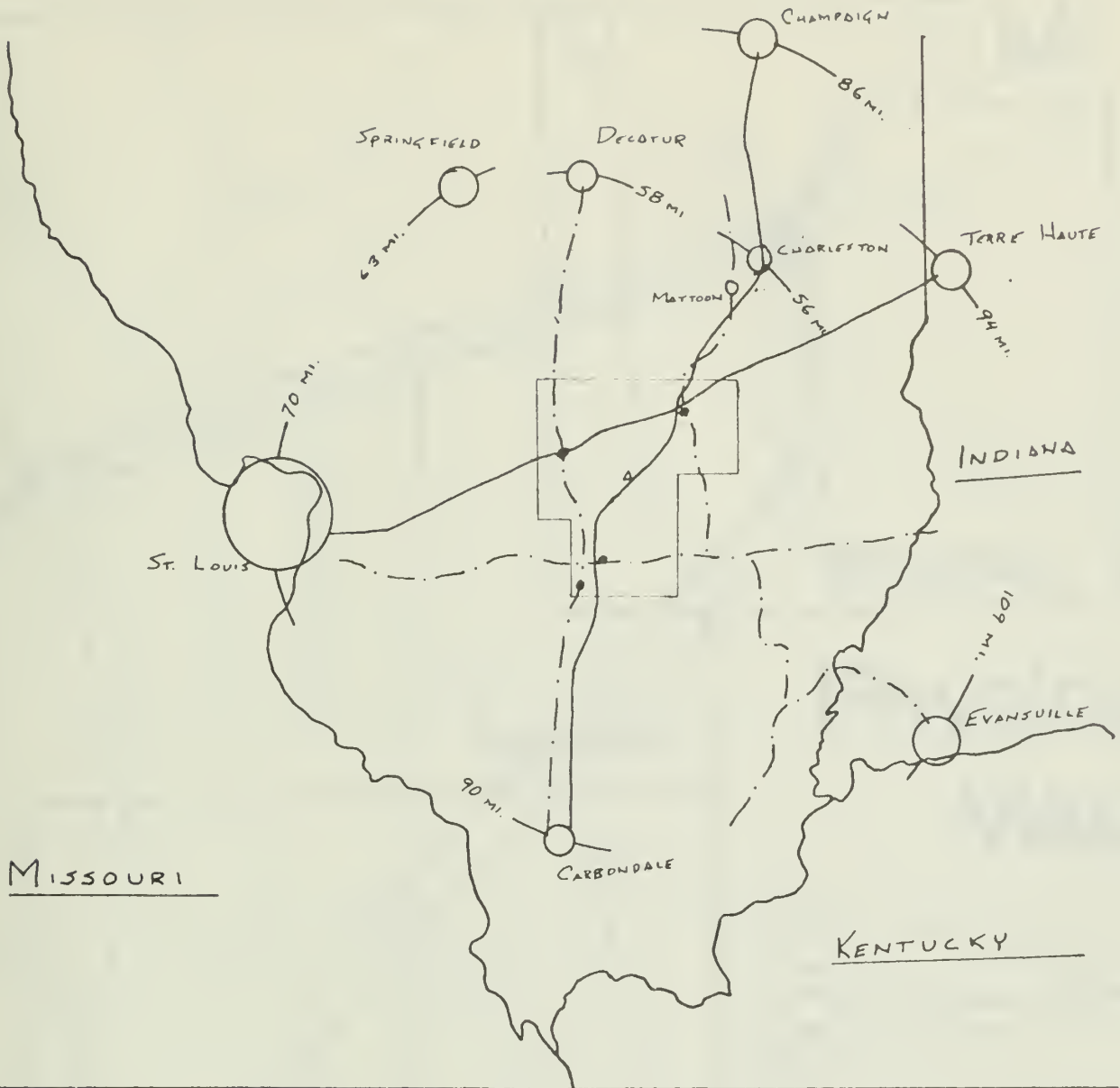
Map 2- Physical Characteristics of SCIR

Map 3-^{*}Potential Water Reservoirs, source: Potential Surface Water Reservoirs of South Central Illinois, Illinois State Water Survey, 1966

Map 4-^{*}Soil Suitability for Agricultural and Urban Uses, source: Effingham County, Illinois 1970 Planning Studies

Map 5- Growth Projections, source: Comprehensive Development Plan 1964- Centraillia; A Comprehensive Plan, Fayette County, Illinois, 1970; Comprehensive Plan for the City of Salem, 1963; Effingham county, Illinois 1970 Planning Studies
Note- only two counties are shown here with complete growth projections. Data for all of Marion County was not available.

^{*}- Effingham County only



LEGEND:



INTERSTATE
HIGHWAY



MAJOR
HIGHWAY

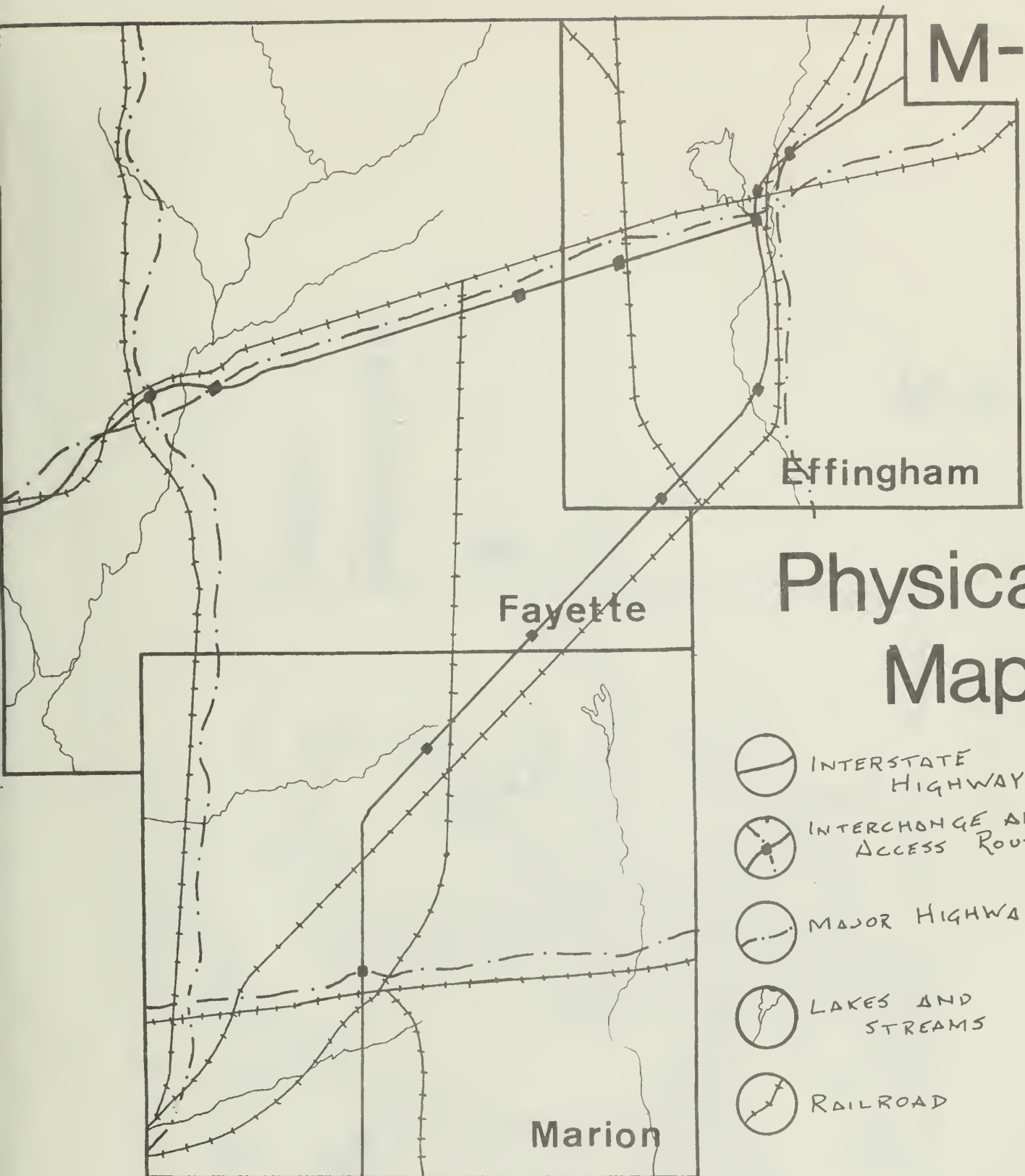


FAYETTE, EFFINGHAM
& MARION COUNTIES



DISTANCE TO CENTER OF
SCIR
BALL RELATIVE TO CITY
SIZE

M-2



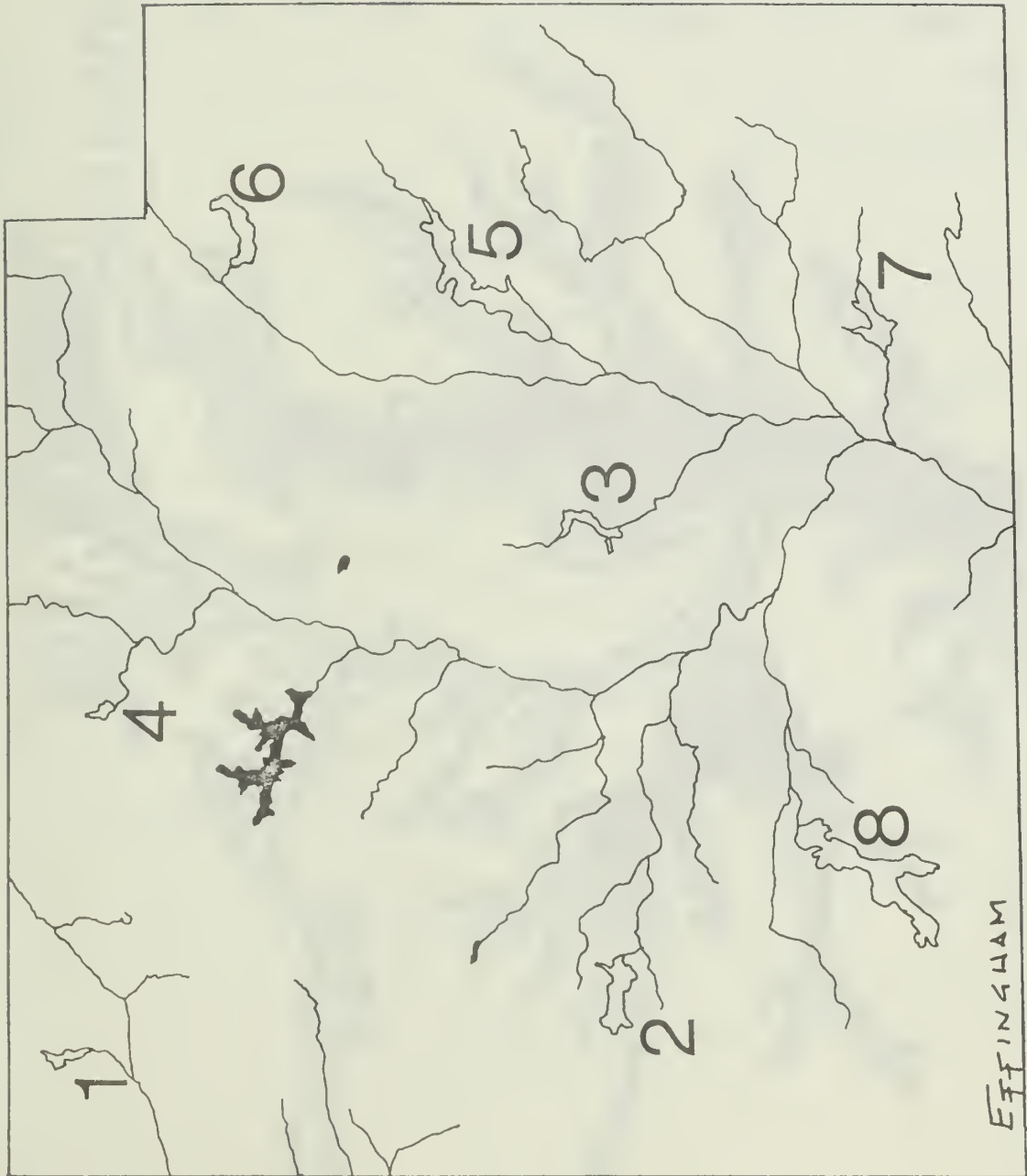
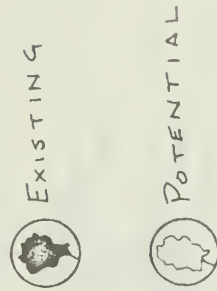
Physical Map

South Central

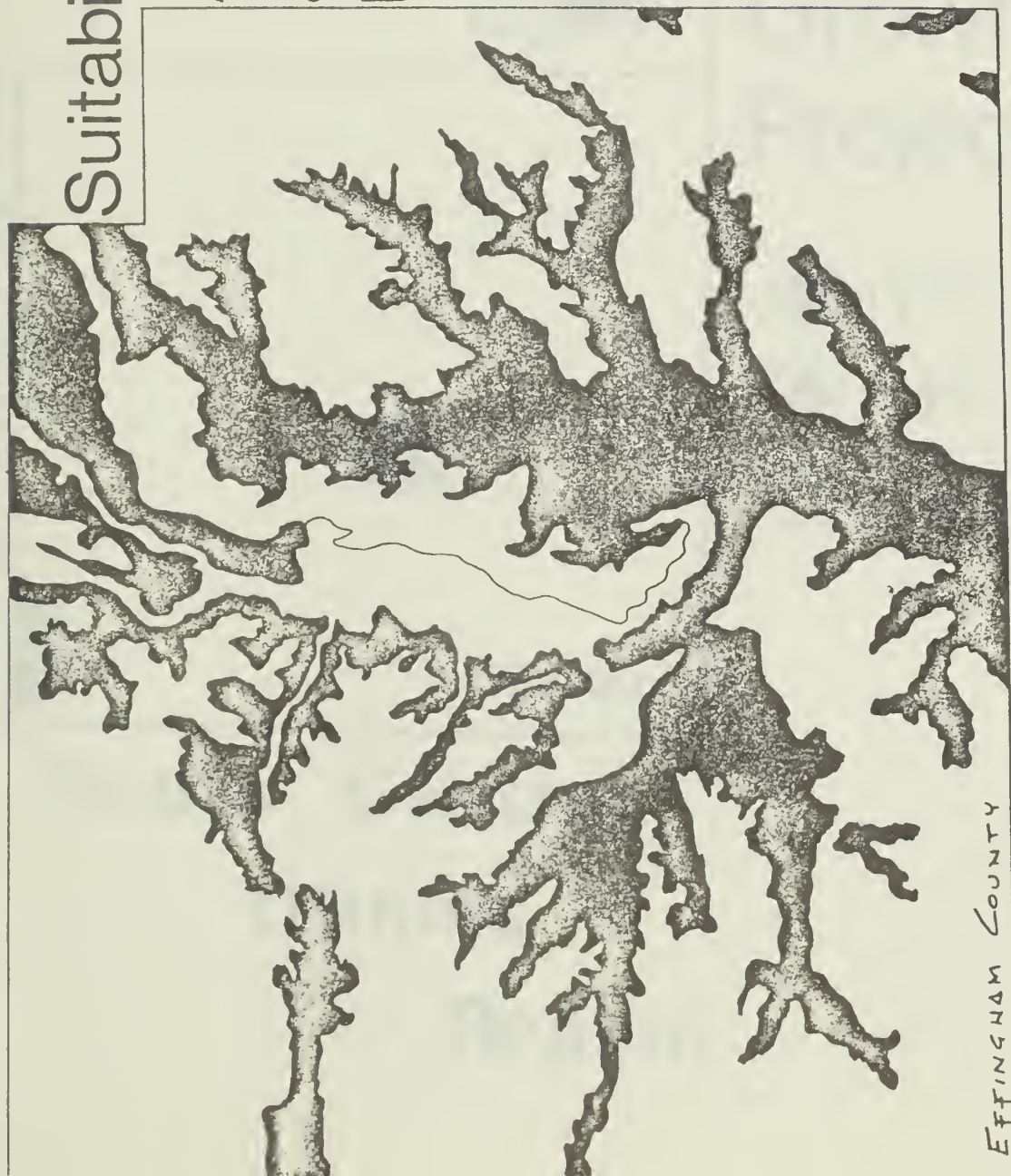
Illinois

Region

Water Reservoirs

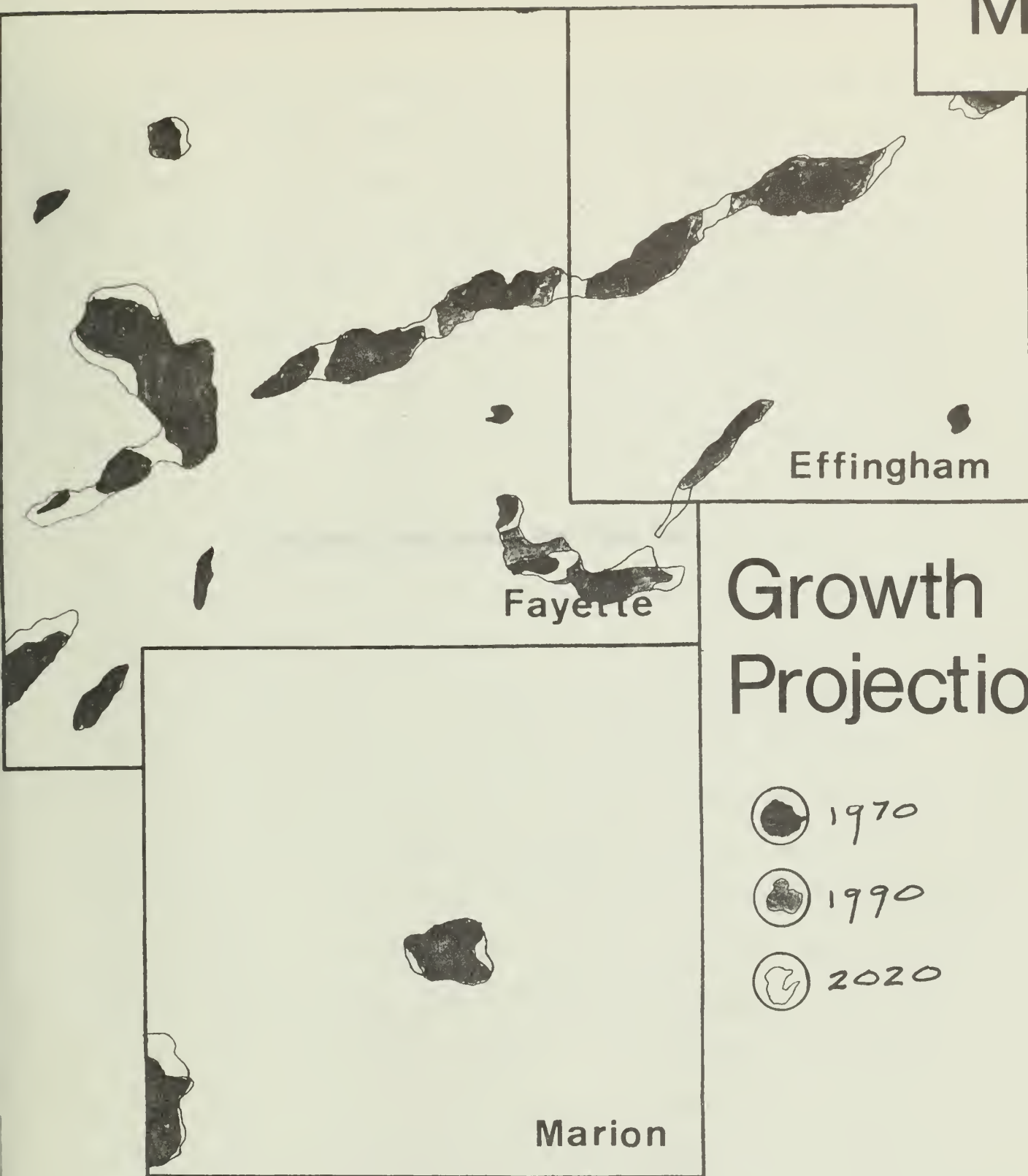


M-3



Suitability for Agriculture and Urban Use

- ☼ GOOD TO VERY
GOOD AGRICULTURAL
LAND
- ☼ POOR AGRICULTURAL
LAND
GOOD URBAN LAND



Growth Projections

- 1970
- 1990
- 2020

**South Central
Illinois
Region**

Economic Development and Land Use

The purpose of this report is to present the economic factors which have pertinent effects upon the intended use of land. The report is divided into two phases: the first phase contains, in statistical and graphical form, an introduction to the economically related land uses as they are present in the South Central Illinois Region, an analysis of the basis behind present locations, and land requirement projections of both size and direction of growth. Phase II of the report establishes a categorical listing of economic considerations and sites as they pertain to land use strategies.

The first map, Map 1, locates the South Central Illinois Region, and is a base for phase 1. The map illustrates the major highways, their intersections, and the location of the region in respect to the surrounding urban areas. Of particular interest is the crossroads effect between such areas as St. Louis, Chicago, and Terre Haute.

The next step of phase 1 is an overview of the present acreage of various land uses. Table 1 shows past and present agricultural uses within the region. It becomes obvious from this table that intensive use in the region is for agricultural purposes. Figures show the region as being composed of 65 per cent fair to excellent farm land, and of greater importance, an average of 78 per cent of this land is presently being utilized as cropland. This 78 per cent is above both the Illinois average and the United States total. Also of value from the table is the amount of woodland being destroyed and the less than proportional increase in cropland. The loss of woodland may become a key economic deficit in the future.

Table 2 gives the present acreage of land in use for such purposes as manufacturing, industry, wholesale and retail trade, residential usage, and public uses. They represent fairly average proportions of urban use.

	1959	1969	increase	% of tot. Co.	
Fayette					
Harvested Cropland	237,852	210,209	-12%		
Pasture Cropland	22,234	32,358	45%		
Other Cropland	10,266	40,548	295%		
Total Cropland	270,352	283,115	4%	62%	
Woodland	43,969	40,073	10%		
Farms in other uses	69,650	40,177	-58%		
Total Farmland	383,071	363,365	-6%	79%	of the total farmland is used as cropland
Effingham			utilization ---	78%	
Harvested Cropland	171,836	160,362	-7%		
Pasture Cropland	21,592	20,638	-4%		
Other Cropland	3,821	19,861	420%		
Total Cropland	197,249	200,861	2%	65%	
Woodland	32,839	28,053	-15%		
Farms in other uses	35,347	23,142	-35%		
Total Farmland	265,465	252,056	-5%	82%	of the total farmland is used as cropland
Marion			utilization ---	80%	
Harvested Cropland	173,722	163,201	-6%		
Pasture Cropland	17,575	26,677	66%		
Other Cropland	10,920	34,268	214%		
Total Cropland	202,217	224,146	10%	68%	
Woodland	37,769	32,417	-14%		
Farms in other uses	52,246	34,102	-35%		
Total Farmland	292,232	290,665	-44%	88%	of the total farmland is used as cropland
			utilization ---	77%	

76.4% of the total farmland available in Illinois is used as cropland
68.3% of the total farmland available in the U.S. is used as cropland

Manufacturing and Industrial uses:
(manufacturing, industrial, mining and oil wells)

	<u>Present</u>	<u>% of Total</u>	<u>SCIR Region</u>	<u>% of SCIR (urban)</u>
Fayette	364	.07%		
Effingham	302.4	.10%		
Marion	995	.30%	1,661.4	9.5%
Wholesale and Retail Trade:				
Fayette	64	.014%		
Effingham	142.5	.046%		
Marion	469	.142%	675.5	3.8%
Residential:				
Fayette	2894	.63%		
Effingham	1450	.47%		
Marion	6910	2.09%	11,254.0	64.0%
Public:				
Fayette	1063	.23%		
Effingham	1239.5	.40%		
Marion	1678.5	.51%	3,980.0	22.7%
			<hr/> 17,570.9	

Note: figures in acres unless denotated by % sign.

The next step involves looking at the capabilities and actual uses of this land. A series of maps aids in this process. Map 4 shows land in the three counties rated good to very good for agricultural purposes and the locations of the seeming veins of poor agricultural land. When this map is contrasted with Map 2 which shows transportation lines, the agriculturally poor land often becomes poor for construction purposes as well. Much of the non-agricultural lands contain high deposits of silt and slak, and thus become vulnerable to periodic land slides and shifts. Other reasons for being termed non-agricultural include river and stream basins and non-porous land having an unusually high water table unsuitable for cropland. Adding a third map, Map 5, we can view the growth pattern in relationship to transportation lines and the avoidance of poor land quality areas.

Growth lines in the region are congruent to the interstate and state highway systems. In the next phase of this report the reasons for this transportation-oriented growth pattern will be examined along with some implications that may alter the predicted growth patterns.

As a base for all economically related land use decisions, a balance is demonstrated between two key factors--1.) economic convenience, and 2.) economic suitability. As Chapin explains: economic suitability pertains to the actual cost of land in dollar value, environmental impact, and social considerations; and economic convenience refers to the value placed on the amount of time and effort exerted. Subvariables to both concepts are location and site. Location is defined as the placement of the land in a geographical sense. Site is defined as the physical characteristics. Considering the different site and location factors which contribute to economic suitability and convenience we can weigh the two aspects for any particular situation.

The elements listed on the following pages are those land use factors which have economic impact on a regional scale. Elements are discussed for the functions of the specific use types and the factors which may vary their requirements. As seen on Map 2 the growth of SCIR has been directed by the expansion of the highway system. A growth corridor is clearly evident along Interstate 70. The expansion of individual towns and cities along the interstates can be seen in scale over fifty years as the pattern becomes one continuous urban line, as Map 5 illustrates.

Economic Factors That Affect Land Use

Manufacturing Areas

1. Reasonably level land, preferably with not more than 5% slope capable of being graded without undue expense.
2. Range of choice in close-in, fringe, and dispersed locations.
3. Direct access to commercial transportation facilities.
4. Within easy commuting time of residential areas of labor force and accessible to transit and major thoroughfare routes connected to housing areas.
5. Availability of utilities at or near the site, such as power, water, and waste disposal.
6. Compatibility with surrounding uses, considering prevailing winds, protection buffer belts, and other factors of amenity.

Business and Retail Areas

1. Adjoining heavy traffic flows, central to their tributary trade area.
 - a. CBD: location close to peak flow of traffic and pedestrians, adequate parking, transit, and regional transportation services.
 - b. Regional business centers: i. regional shopping centers--location close to two major arterials tributary to trade area, site needs such as parking, full line of business and service needs, and financial service such as branch banks or satellite drive up banks; ii. convenience centers: smaller in range of services, however more frequent, i.e., farmer's market. Convenience centers are usually located on intersections of radial and circumferential arteries.
2. Suitability for development as one center internally arranged or in an integrated series of sub-centers.

Public Service Facilities

1. Suitable locations, adequate in size for intended use and projected growth requirements. Uses include: civic centers, utility plant needs, transportation terminals, and institutional uses.

Region-Serving Recreation, education, and Cultural Facilities

1. Reasonable for construction of needed structures, and when used for open space needs, containing a variety of natural features. This land may often be useless for other purposes because of soil conditions or seasonal flooding.
 - a. Major parks, public reservations, and golf courses: fringe areas or easy access areas, topography being standard for a particular use.
 - b. Colleges, medical centers, and institutions: fringe areas with adequate buffers depending on use and site adequate to accommodate buildings, accessory parking, and other uses.
 - c. Cultural facilities, large churches, and spectator sports: level sites in central location but out of high value areas, adequate parking, traffic routes, and general amenity to the surroundings.
2. Suitability of unusual land forms and natural drainage creeks for incorporation for the surroundings, while also acting as a buffer.

3. Direct access to major thoroughfares and transit routes and reasonable closeness to urban centers.

Residential Communities

1. Terrain offering variety, rolling or hillside estates, and fairly level as to construction costs.
2. In close proximity to major thoroughfares and transit systems with direct links to work and leisure time areas.
3. Availability of services and goods depending on need requirements.

All the above factors must be balanced between economic convenience and economic suitability.

Economic convenience is a combination of time and effort based on the assumption that time is money in application to both the individual and the institution.

Economic suitability pertains to the actual cost of the land in dollars, environmental impacts, and social considerations.

Future Impacts on Agricultural Land

This report focuses on the conservation issues of agricultural and forest land, especially in Effingham County, and defines some possible resolutions to the conflicts that arise. Agricultural land for many years has been decreasing nationwide. Effingham County has plentiful undeveloped land which is excellent for crop production. The trend here, though, just as in the rest of the nation, is to convert some crop land to other uses, often urban. Urban growth momentum has been increasing, especially in the nation's metropolitan corridors where the momentum is now built in. Undeveloped land values in these corridors rise due to increasing development potential. Similarly, but on a smaller scale, the identified growth centers and corridors of urbanizing areas not directly in the huge metropolitan corridors are likely to feel heightened pressure to convert to urban uses. The South Central Illinois Region, which is made up of Effingham, Fayette, and Marion Counties, is in this category.

The Myth of "Reserve" Agricultural Land¹

Some studies concerning agricultural land in the nation state that there is plenty of reserve land which presumably will be available for cultivation if it should ever be needed. The question of needing more agricultural land arises when reports show the conversion of thousands of acres annually of good farm land to other uses. Although the nation enjoys a surplus of crops today, many experts are predicting food shortages nation- and worldwide in the near future. If identified, these "reserves" are actually forests or grasslands, many with severe cropping limitations. They often require costly clearing, draining, or other treatment before being converted to cropland. Actually, these lands should be considered as ecologically fragile and kept in their native condition, not converted to other uses. Clearing of these lands often results in a high rate of erosion, not to mention the loss of wildlife habitat.

with its natural foilage. The topsoil of these lands is not of as good a quality as prime agricultural land, and may be easily lost with present farming methods. Use of this land for crop production, even when carefully maintained, requires on the average, twice the acreage of good agricultural land to produce an equivalent quantity. It also requires increased management and energy demands, which are passed on in food prices. Therefore, the "reserve" agricultural land in the United States is better off maintained in its natural state, and good agricultural land is best suited to continue producing crops.

2

Second Homes

At the national scale, the recreation home land boom is explosive. Many states have experienced great excelleration in the subdivision of "second home" lots which usually involves vast tracts of "raw, rural acreage." Uncontrolled, this subdividing takes great amounts of land, often agricultrual, out of its present use, and begins the process of urbanization. Recreation home development stimulates complementary urban development, causing urbanization of the countryside, raises property taxes of the surrounding undeveloped areas, requires and demands new public services, and eventually undermines the agricultural economy in farming areas.

The subdivisions for recreation or retirement homes are plotted years before they are fully developed. One or two lots may be built on early, which prevents the entire tract from being kept in production until built on. In other cases, improvements are put in - ground is leveled, roads are built, water and sewer lines are installed - long before any residential construction begins. If allowed to remain standing in such a condition, the land not only stands idle and unproductive, but erosion of the soil is often great, reducing its value for agricultural purposes, should it ever be allowed to return to agricultural use.

The Expansion of Highways

The nation has an excellent system of highways and interstates. These roads connect urban centers and facilitate communications between areas. They provide access to any area, urban or rural, anywhere in the continental states. They facilitate the transport of goods from one area of the county to another for manufacturing purposes or for sale. They also require great amounts of land for the roads themselves and the rights-of-way. When new routes are being decided in urban areas, the effort is made to so place the routes that they will require the least amount of demolition of present structures while still being economical and efficient. In non-urban areas, the presence of obstacles is of lesser importance, since structures are spread out. Highways generally follow straight, level directions. The soils best suited for economical highway construction are also the best agricultural soils.

Another concern in determining routes in rural areas is often not taken into account. This factor is the layout of fields. Highway routes often cut off some fields from the side of the road where other fields and the farming machinery are located. This requires that the farmer build an underpass or special road for his machinery, or find some other manner of working the alienated fields. Highways may also be routed so as to divide fields with irregular shapes or into sizes too small to be easily or efficiently farmed. In this manner the highway not only takes the land it is built on out of crop production, but also the divided parcels of fields that have no access or lack adequate size.

The Energy Crunch

At the same time that the nation first felt the effects of its lack of concern for its crop production, (when huge foreign grain sales depleted the nation's reserves) it also felt the effects of its lack of concern for its energy production. The nation's energy production was also in a state of crisis. The nation's energy production was also in a state of crisis. The nation's energy production was also in a state of crisis.

system relies on gasoline and other petroleum products for power and lubrication of farm machinery; demands natural gas for use in the manufacture of fertilizer; needs propane to dry grain; and uses electricity to operate equipment. The rise in prices or the scarcity of these energy sources cause resultant rises in food costs. Federal programs had idled some farmland when over-abundant crops were being produced. By 1973, almost all land formerly idled was brought back into production, which increased crop production, but also increased the energy requirement associated with farming.

The Reason for Concern

Many factors play a part in how much land is devoted to crop production. At the national level the amount of cropland converted to other uses is staggering. Even at the state level, the total difference may be surprisingly large. At the substate regional level though, the effect is less obvious, and the results seem minimal. A few acres here and there do not make much difference in the county's total crop production. Multiplied by every agricultural area in the nation though, the effects are immense. Illinois is in the heart of the corn belt, with some of the best agricultural land in the world. This cropland needs to be well-managed and preserved if this and future generations are to be free from food shortages. The pressure of urbanization is increasing in South Central Illinois. Effingham County is part of this urbanizing area, and its croplands may be in danger of being converted to other uses if public concern within the area does not voice itself.

Effingham County as an Example of the South Central Illinois Region

This report uses Effingham County as an example of the problems and possible solutions in the whole of the SCI region. Effingham, Marion, and Fayette Counties are contiguous counties, experiencing the same general

climate, containing similar soil conditions and percentages of land use, have similar population characteristics, and are designated as areas for future growth. The study done here of Effingham County is not conclusive, but it is indicative of how the problem can be approached at a regional level. More complete, detailed studies would be necessary past the level presented here before policies could be established and lines of action decided.

The following table³ shows the general similarities of the three counties and the region as a whole. Effingham County can be seen to be a typical sample of the region.

Population Characteristics (1970)

	Effingham	Fayette	Marion	SCIR
Population	24,608	20,752	38,986	84,346
Urban Distribution	12,636	6,836	24,224	43,696
Rural Distribution	11,972	13,916	14,762	40,650
% over 16	66.7%	72.7%	71.7%	70.5%
Civilian Labor Force	9,142	7,390	14,742	31,274
% Unemployed	2.7%	2.6%	2.9%	2.8%
Projections - 1990	29,122	21,492	42,229	92,843
Projections - 2020	37,109	25,001	50,724	112,834

Land Characteristics (1969)

Total Farmland (acres)	252,056	363,365	290,665	906,086
Total Cropland	200,861	283,115	224,146	708,122
Woodland (%)	17.4%	20.1%	19.3%	19.3%
Coal Reserves (tons)	1.7 Billion	3.2 Billion	2.0 Billion	6.9 Billion
Prime Agricultural Land	69,000	142,000	58,000	269,000

Although some deviations from the norm are shown in some categories, the general observations of Effingham County are fairly representable of the South Central region as a whole. Some differences that may cause further changes include the construction of the Louisville Reservoir in Effingham County, and Carlyle Reservoir in Fayette County. These are both to be large multi-use reservoirs. Carlyle Reservoir has already been built and its shorelines are being developed. Construction of Louisville Reservoir is expected soon. The subsequent development around Carlyle and Lake Sara indicate similar growth will probably occur around the Louisville Reservoir.

Fayette County has the most obtainable sources of coal in the region along the Kaskaskia River. This area is much more likely to get coal gasification plants, due to its proximity to the coal source and to water. The impacts involved in location of this type of industry include new employment opportunities, necessary roadways and parking areas near plants. Since the area along the river is wooded, placement of these facilities would destroy some timber, but would not take over agricultural land, and probably would not cause much soil erosion.

Identification of Conservation Issues

The area of land use conservation is broad and multifaceted. Different areas of concern call for differing tactics and means of management. Some conservation issues are more prominent in some locations than others, and issues that may require immediate attention in one area may be of secondary importance in another.

Water resources are often of primary importance to any area if it is to support life. Water may be obtained from surface sources, such as streams, lakes, and reservoirs, or from underground sources, usually with a well. The greater the urban development in an area, the larger are the requirements for water. Urbanizing regions want to develop their water sources if the want growth to continue. The storage of water in reservoirs is often a multiple use action. A reservoir may serve to supply a community with water without the financial constraints of piping it in from a distance; may serve as a lake for recreational purposes; and may serve as a needed water supply for industry located nearby.

Agricultural lands are important to the local economy if they are in substantial supply. Much of Illinois is covered by prime and good agricultural land with high crop yields. This land is generally flat and well-drained, which makes it attractive for urban development as well. The conservationist's main concerns about agricultural lands are 1.) to keep as much prime and good cropland in production as possible, and

2) to guard against erosion.

Forest land covers extensive portions of the country, including Illinois. Forests often grow in soil that is poor for crop production, because it belongs in higher soil classifications*, slopes too steeply, erodes too much, or remains too wet. Forest land can be used for production of timber and wood products, or wildlife preserves, as well as recreational purposes. If forests are cleared, erosion may be difficult to control. Urban uses often replace forest uses if the slopes are not too steep and the water table is not too high. As long as the soil is covered in some way, by trees, or grass and cement, then erosion of the soil is not too great. Forest areas are many times selected for reservoir sites due to their sloping valleys and natural water holding capacities.

Other areas of concern include: open space, greenbelts, recreational land, erosion, coastline management, and others not included here. Environmental quality involves the management and coordination of the several uses in a region. Some environmental concerns cannot be adequately managed within a county or region though. Such areas may include water quality and supply, which may require intergovernmental cooperation between regions, and between federal, state, and local levels.

Agricultural and Undeveloped Land in Effingham County

Effingham is a largely rural county, just beginning to feel the push to grow. Like many newly-urbanizing areas, Effingham County has no established practices for guiding expansion. Up until the present there has been minimal concern for preserving the county's abundant

* Soil Capability Classes for Agricultural Purposes

Classes I & II - good agricultural soils	Class IV - soils with severe limitations
Class III - soils with some limitations	Class V-VII - not suitable for crop production; largely for pasture, woodlands, and wildlife

natural assets. There always seemed to be sufficient farms, coal reserves, forests, and ground water. When the rail lines were built early in the century, small towns grew up at the stations. State and Interstate highway routes later closely followed the train tracks, improving transportation in and out of the county as well as through it. (see Map(2), page 12.) Migration patterns prominent through the first half of the 60's slowed and reversed, as less people felt compelled to leave the rural area, and outsiders began to move in. The employment rate has been fairly high, but new industry is desired to lower unemployment that does exist and to improve the county's economy. Due to the lack of employment opportunities for young adults, the population distribution in the county region has been skewed toward people over forty.

By far, the most extensive land use is farming. In 1969, 252,056 acres in the county were in farmland. Of this, 160,363 acres were harvested cropland. The remainder was in pasture, woodland, or other uses.⁴ The value of crops in 1969 exceeded \$8 million. Forestland accounted for over \$23,000, and livestock in the county was worth almost \$11 million.⁵ The trend has been toward fewer, but larger farms. Total farms in 1964 numbered 1,494, but in 1969 were 1,341. During this time, though, total sales of farm products increased by over \$6 million, making the average sales per farm approximately \$14,050.⁶

A survey of the region in the late 1960's showed that of Effingham County's total acreage of cropland, 69,000 acres were considered prime agricultural land. The region as a whole is about 60% agricultural land, 40% of it prime.⁷ Coal deposits of great potential significance to the region's economy also exist in Effingham County. The reserves are estimated at 1.7 billion tons of moderately high sulfur coal. Other mineral resources, such as oil, sand, and gravel are found in the region in smaller amounts.⁸ Forests account for 17.4% land cover in Effingham

County. Oak and hickory dominate the region with neighboring Fayette

County being a leading lumber-producing county in Illinois. It is suggested that with improved timber management there would be greater timber production, and improved erosion control.⁹

Lake Sara, four miles west of the City of Effingham, covering more than 150 acres is the largest existing reservoir in the county. Two small surface water sites, one south of the City of Effingham, and one near Altamont, also provide access to water. Eight reservoir sites have been proposed throughout the county. (See Map(3) page MB .) They range in size and capacity as well as in distance from existing cities. As expected in the Lake Sara development, the construction of a reservoir stimulates new urban growth which, if not carefully planned, can be haphazard and cause unnecessary problems. Although no local controls such as zoning affected the Lake Sara area, the Effingham Water Authority applied deed restrictions to the land as it was sold. A plan for development has been prepared, indicating what areas are to be used for what purposes. As land is sold, minimum deed restrictions covering such topics as structures allowed, minimum lot and structure sizes, lot and floor areas, and yard setbacks are included.¹⁰ It can be assumed that some of the proposed reservoir sites will be started in the near future as a reaction to a rise in population, which will in turn induce more growth.

General growth projections are included in the planning studies of the county completed in 1970.¹¹ The projections are based on a land use study and the population projection of 38,865 for the county in 1990. The trend from 1959 through 1964 in agricultural land was a decline of 1% of total acreage. If projected to 1990, 11,550 acres would be removed from production, probably being converted to urban use. Residential growth is projected to require 1,553 **new units** by 1990. At four units per acre, this would be 390 acres of new residential land. About 43 acres of commercial land, and 141 acres of additional industrial land are projected, if present ratios of population to land use are held

fairly constant. The study assumes large areas of land will be devoted to other urban uses as well, such as schools, utilities, and roads.¹²

Dimension of Impacts

Any action, performed on or to the land has its results, whether caused by natural occurrences or the will of men. The flooding of a river causes land covered with vegetation to be too wet for a sustained length of time and eventually lose all its growth. When a dam is built the result may be low-lying forest land becoming a lake. It is these types of impacts that will now be discussed.

The availability of water is a critical factor in any region. Agriculture needs sufficient water for crops during the growing season. This need may be met solely by the rainfall of the area, or may be supplemented by irrigation. If other uses in the surrounding region stress the ground water reserves, they may lower the water table of the croplands. Conversely, if a reservoir is constructed, nearby land may be permeated by too much ground water seeping out. Reservoir sites may also be situated on agricultural land, causing total loss of that land's utility for crop production.

Expansion of one land use diminishes another. In the same way that reservoir sites take some cropland out of production, the expansion of agricultural land into forested areas reduces the wildlife area of a region. Forest land is often cleared to make new fields to be cropped. The effects of clearing may include severe erosion. Present farming methods schedule plowing of fields in the fall after harvesting season. The plowed fields then lie uncovered throughout the winter and early spring. They are left unprotected from the wind that can blow off the topsoil, and from snow and rain which carry the soil with as they wash away. Not only does erosion of the soil affect the croplands, but the streams and rivers into which the runoff washes become clogged with silt.

This slows the flow, causing more silt to be deposited in larger quantities downstream, and finally may cause flooding. This flooding, in turn, causes the surrounding land to be eroded and often makes the land practically unusable due to seasonal flooding.

Urban development can affect land in many ways. As cited before, highways take up quantities of land for the roads themselves and may leave small parts of fields to the sides. Other modes of transportation also exert effects on the land. Airports are often built outside of urban centers on undeveloped (agricultural) land, necessitating new roads to get to them and generating new traffic. Most rail lines in Illinois are old, so they do not present the problems highways do of taking new lands to build on. Often, highways run parallel to rail lines, forming an extended narrow prairie area. If allowed to grow naturally, these strands of otherwise unusable land may be ideal for wildlife refuge and native botanical areas.

Urban development in the form of cities and towns also affects the land. If not prohibited or restricted locally, outlying agricultural land may be subdivided and sold. Once urbanized, land is rarely returned to its former use. Urban development in one area induces growth to expand nearby, taking up more land for structures, roads, and utilities, and placing greater stress on the outlying land to produce on the remainder what was formerly produced on it plus what was produced from the now-urban land. When local controls do not regulate where, how much, and what kind of urban development occurs, the likelihood increases that growth will be dispersed. Scattered growth requires extensive utilities and roads, both of which by nature require greater energy consumption and amounts of land. Runoff may become a problem if storm sewers are lacking or inadequate. Pollution of the air, water, and soil increase as the density of urban life increases. Since growth induces more growth, once an urban community is begun and has economic stability, it will continue to grow.

Urban development, though, does not have to be viewed solely as a necessary evil. If controlled, development can take place on land largely unusable for best crop production that does not include too many physical constraints. Local or regional decisions would facilitate the identification of areas to be built up and areas to definitely be untouched. Urban development may be better for some location that crop usage because it covers the land area, preventing erosion. Densities may be determined for sections of land in urban use to allow the most intensive use without overtaxing the land. Urban uses can thus "blend in" with the surrounding area, not be at odds with it.

Energy development sites may also demand land. In Illinois coal mines and related industry are important and may expand as new energy reserves are being searched. Coal is located under prime agricultural fields in central Illinois. Coal in this area is so deep, though, that strip mining is not performed, so the usual complaints about losing prime agricultural land are not applicable here. Nevertheless, surface stations must be located above the mine shafts, thus taking some agricultural land out of active production. Laboratories and plants may be located near the mining sites to conserve on transport of coal from the mines, and to cluster the mining-related land uses, minimizing their invasion on cropland.

Land Use Impacts in Effingham County

Assuming that growth and development will take place in Effingham County in the future, several impacts on land can be expected to occur. The use of agricultural land, the largest category of land use (by acreage) in the county, will probably be seen as the most expendable for future development uses. Water reservoirs, in this situation, would be in the same class as highways and other urban development in that each would be

desired for greater public amenities and local economic growth. Forest land, too, may be seen as good potential sites for future development.

The existing and proposed surface water sites for Effingham County are shown on map(3) on page M3. The eight proposed sites have been identified in feasibility studies conducted by the Illinois State Water Survey, and are described in the Effingham County Planning Studies, 1970.¹³ All the proposed sites are on creeks or rivers which flow throughout most of the county. Some of the sites would be in locations where roads, houses, and other development already stand, or timber covers otherwise eroding soil. Very little prime agricultural land would be removed from production by any of the reservoir sites themselves, although the surrounding lands which may be altered are sometimes agricultural land.

Individual farmers, or the region as a whole may decide that one policy to follow in the future is to expand agricultural land. This expansion would most likely reach into forestland. As shown before, forest soils generally are not as productive and are more prone to erosion than prime or good agricultural land. Reducing the amount of timberland reduces the wildlife preserves in the county or region and also reduces the economic potential of lumbering and manufacture of wood products. This extra land in production would cause little difficulty during the growing season, although extra maintenance would probably be required, but erosion might be of considerable concern when the land is not adequately covered. Since much of the "reserve" agricultural land that may be used is on slopes, the problem of erosion is even more difficult to control, and the planting and harvesting of crops becomes more difficult. Terracing of land may be at least a partial answer to both problems.

Effingham County has felt the surge of growth since the Interstate highway system, I57 and I70, through the county was completed. The two roads cross at the City of Effingham, where over 1/3 of the county's population resides. The interstates relieve congestion on the state

roads following similar routes, and have improved connections within the county and between the county and more distant areas. Growth can be expected to occur along these main lines of transportation, which fall dominately in prime agricultural areas. If uncontrolled, strip development is likely to take up unnecessarily large amounts of land for structures, parking areas, and roads to get to them. Residential growth is also likely to occur, if allowed, in a spacious layout, especially near intersections (see maps 2, 5 pages 2, 5), causing large amounts of agricultural land to be converted to residential use, utilities, complementary commercial and industrial uses, roads, and other uses desired by the communities.

Thus, although the Interstate routes allow for greater movement within and through the county, they also induce growth nearby. Since the roads have been constructed mainly in prime agricultural land, the subsequent growth also takes place there, causing substantial loss of agricultural lands. The trend in the past has been for growth, if fairly free of legal constraints, to take place on level, well-drained land, which is usually agricultural, where there are the least problems facing development. This growth tends to be spread out, requiring long utility lines and great extent of roads.

Industries often locate near major transportation access and any resource reserves (water, coal) necessary for their production. Effingham County offers many suitable sites for industry which do not lie in agricultural land and are not far from water or transportation. These areas may also be potential growth areas. The map on page (4) shows generalized land areas suitable for urban use. It also shows generalized areas of less production or poor agricultural land, much of which is not too steeply sloped or otherwise unfeasible for urban uses. Many of the areas of land unfit for efficient crop production have been proposed to be used for woodland, recreational, or urban development in the Planning Studies for the County.¹⁴ The table on page 15 shows land use suitability for non-agricultural lands.

Land Use Suitability for Non-Agricultural Land

	Woodland Development	Recreational Facilities	Residential(5 acres+ per unit)	Residential(1-5 acres per unit)	Residential(full utilities, small lots)	Highway Construction	Airport Facilities	Commercial(with utilities)	Commercial(without utilities)	Industrial(with utilities)	Industrial(without utilities)
Urban Lands	C, A	B,C	B,D	C	A,B	B,D	B,E	A,D	B,E	B,D	C,E
Ag. Lands	D,C	C,B*	D,C*	E,D*	C*	C*	C,B*	C,B*	D,C*	C*	E,D*

(Refer to Map 4 for approximate locations of agricultural and urban lands.)

A= very well adapted

B= some hazards, easily adapted

C= hazards, can be corrected

D= severe hazards, should not be utilized

E= very severe hazards, not to be utilized

*= some soils in this range are under seasonal floods, and therefore are unfit for development

Source: Effingham County, Illinois, 1970, Planning Studies, p. 198

Energy development mines and industries may become of major importance to Effingham County in the near future, as new ways of combustion with low pollution are found for Illinois coal. In addition to mines, related industries that require large amounts of coal will want to locate in the county for their convenience and to aid efficiency. All coal-related uses will require expanses of land in the county, and may well locate on agricultural land if it is not adequately protected. The combustion of Illinois coal, if not properly heated, emits high levels of pollution. One of Effingham County's natural assets, as noted in the Environmental Profile Appendix of the region's OEDP¹⁵, is the high quality air shed. Pollution by these and other industrial uses may also enter the water of the region and county if not properly controlled. The table on page 17 shows acreage totals of non-urban land in Effingham County and the possible degree of impact by the various types of development that may occur in the near future.

Some Instruments Used to Resolve These Problems

Various methods have been established for the local, regional, state, and federal levels to control growth and protect resource lands. Some of these practices are stronger and more efficient than others, while some are voluntary and others are imposed. Depending on the area's expressed need or desire for a certain minimum of a specific land use, such as agriculture or forests, the region may well be the level best suited to impose binding regulations. State and federal legislation on land use has been in the planning stages for quite a while, and only now has begun to be definitive.

Local controls have, in the past, been the only instruments used to guide development. Regulations may allow public services to expand only in the direction and at the rate the area has determined it wishes to grow. This requires then, if it is to be effective, that the locality perform an extensive study of the area's growth potential and make policy decisions as to how the community wants to grow. The greatest hurdle

IMPACTS OF CHANGES ON AGRICULTURAL LAND USE

IN EFFINGHAM COUNTY

	Prime agricul- tural land	Good agricul- tural land	Pasture	Other cropland	Woodland	Farm land in other uses
Totals	69,000	116,000	20,638	19,861	28,053	23,142
Water reserves	0	0	*	*	---	*
Expansion of agricul- tural land	0	0	---	*	---	*
Transportation	--	--	*	*	0	*
Urban development	--	--	*	*	*	*
Energy development	--	*	0	0	0	0

17.

0= little or no impact

*= moderate impact

---= major impact

Source: Overall Economic Development Plan, and

South Central Illinois Resource Digest

here may be generating sufficient interest for the plan to be accepted.

Zoning, subdivision regulations, building codes, and other local controls have been proven inadequate by themselves. Developers, if they wish, are usually able to work around the restrictions imposed on them or are able to have them changed as they apply to the site to be developed. Interim controls may also be imposed by local government, such as moratoria on development. These may be effective for the length of time the ordinance is in effect, but they can only stall the problems for a while, and do nothing to correct them. While these local controls are beneficial in guiding growth, they are not sufficient in themselves.

The most widely applied approach for protection from undesirable growth has been the preferential taxation of agricultural land. This calls for the assessment of land on the basis of its actual use rather than its development potential. Since property taxes are based on the assessment value of land, a substantial decrease in financial pressure is provided by this method. In some places, 80% of the land value of property is the development potential value. More than 30 states make use of this method, but by itself it is not sufficient.

Deed restrictions are another method used to protect the future use of some lands, these restrictions are individually imposed when property is sold. They may restrict the use, size of structures, amount of property built on, or other criteria that would affect the development potential. Deed restrictions first go in effect whenever specified by the deed, and will be passed on to subsequent owners with the land. They may complement zoning or subdivision ordinances, or building codes, or may encompass all or part of such restrictions themselves. The difficulty with deed restrictions is that unanticipated circumstances may arise which conflict with the established limitations, but their legal authority is also beneficial in that they are fairly permanent, thus diminishing speculation.

At the regional scale more authority allows for potentially better controls. A county or a multi-county area has a wider "field of vision" and can better decide where growth should and should not occur throughout the region, unlike a locality's scope which is limited to the urban area and its immediately outlying areas only. A region may also have more funds available for guiding growth than a single locality would. The purchase of development rights is one control option available. The government level responsible, usually the region, pay the owners the portion of the appraised land value that represents its development potential. This action clears the uncertainty of the land's future use, lifts the tax burden from the farmers, and allows farmers to retain all other ownership rights, to make long-term investments in farming operations, and to pass the land intact on to future generations. Suffolk County in New York has set up such a system. The acquired rights become capital assets of the county which cannot be sold or transferred without voter approval by referendum.¹⁶

One of the definite problems with this proposal is that it would be "prohibitively expensive and funds for it would be difficult to raise." Some possible sources for revenue have been suggested. Funds may be obtained by issuance of State bonds which would be repaid by a conveyance tax on the sale of all real estate in the participating region. Another funding possibility might be through a federal-state matching grants program, similar to the Land and Water Conservation Fund now operating for the purchase of land for recreation and open space purposes.¹⁷

The designation of agricultural districts is another possible instrument to guard agricultural lands from development. This may be operated by regional or state level government. A New York State law put more than 1.75 million acres into agricultural districts in 1971. The law provides several benefits. 1) Local ordinances cannot restrict structures and activities normal to farmers; 2) Public agencies cannot take farmland by eminent domain without special justification; 3) Sewer and water taxes cannot be levied on farmland. However, once a district has

been formed; and 4) property tax assessments may be based on agricultural instead of market value.¹⁸ The last statement includes with it the stipulation that if a farm owner sells land for development which has been assessed at its agricultural value, he must pay the difference between the taxes paid on the agricultural assessment, and the taxes he would otherwise have paid for the previous five years.¹⁹

The state of Illinois recently enacted a bill that would allow farmers to voluntarily set up agricultural districts through their County Boards. The lands would have to be contiguous, and all owners would agree to keep their land in crop production for eight years. The contracts would be reviewed every eight years, and unless the majority of landowners agree to end the district, it will be renewed for another eight year period. Once districts are established, then, they will be fairly permanent. Although this is authorized at the state level, it is the regional level which controls its application, since the landowner and county must be the ones to initiate the regulations. As an incentive to form agricultural districts participants will have their land assessed at its agricultural value, thus substantially reducing the tax burden and the push to develop.²⁰

The Illinois legislature is in the process of determining another bill which would affect farmland statewide. HB 962, to be considered in the next legislative session, provides for enforcement of soil conservation projects. The Soil and Water Conservation District would receive complaints of soil erosion damages, and local members would first ask the offending farmer(s) to relieve the problem voluntarily. If this persuasion is inadequate, the offender may be prosecuted at the county level as a "petty offender". If no action is then begun, the state EPA would move in. If the farmer decided to correct the problem, he would be eligible to receive cost-sharing funds from the state if they were available. Previous versions of the bill have been discussed in the legislature for three years, but farmers and others involved do not feel it is yet adequate to provide

sufficient controls.²¹

Federal action may also play a part in coordinating agricultural and urban uses. Federal or matching federal-state grants may provide funds for state or regional programs. Other actions might include increased support, most likely monetary or technical assistance, for the improvement of conservation practices, and improved data collection of soils and their uses. Federal pressure to keep some areas clear of development would supplement or might even override local or regional restrictions on the land.

The collection of data on soils might better be performed at the state level, where a data bank on soils, land uses, water projections, population projections, and other files could be conveniently located for all localities and regions. A state-wide inventory of land use was done in Michigan to determine the present amount of agricultural land. Future population projections were then applied and the requirement of agricultural land to feed Michigan's population in 2000 was determined. This example shows how state can plan far ahead to determine whether it will meet its own responsibilities to the number of people expected in the year 2000. In the process, the study also focused public attention on the issue of Michigan's loss of agricultural land and the possibilities available to slow down or avoid its continuance.²² Such future needs projections, performed at the state level, benefit the substate districts as well as the federal level in determination of policies and specific actions.

In order for any of the above instruments or others not defined to be successful, they must include public attention to the problems. If a locality perceives a problem exists they will be much more likely to work toward resolution, either by implementing controls locally or regionally, or by requiring state or federal assistance. Areas in which residents do not feel a land use problem exists will have a more difficult time getting voluntary assistance in forming agricultural districts, for example, or in requiring support for state or federal programs.

How Management Instruments May be Applied to Effingham County

None of these counties in the South Central region have county zoning ordinances, although it has been proposed for some before. Therefore, other local restraints must be employed if future growth is to be sufficiently guided. The example in the Lake Sara development plan shows the foresight in including detailed requirements for building quality, set back lines, and use limitations in deed restrictions, which went into effect when the Water Authority first sold the properties.²³ The region as a whole, or each county, may decide to implement zoning and/or subdivision ordinances and building codes for all unincorporated areas. The county boards may decide to enact developed growth policies by allowing utility lines to expand only in certain directions at specified rates, thus reducing the threat of leap frog development. Interim controls may also be established as temporary measures while policies are being formulated or reviewed. A combination of local initiatives to guide development will have the most direct impact on how and where the region develops.

To insure credibility, all local controls should be coordinated with the comprehensive plans of the area. Plans and policies should be reviewed, revised, and expanded as necessary so that a clear picture of the direction and rate in which the area wants to grow is presented. Any local controls should then follow the guiding directions of the established plans. Also, the region has a better stand against state or federal projects that may affect them if they have clearly stated their desired rate and direction of growth. Well-coordinated local controls will increase efficiency and eliminate two departments or levels of government from overlapping or conflicting control.

State and federal actions, which are administered through the regional or county level will also play a direct part in controlling growth. The soil conservation bill now pending calls for local control with ultimate power at the state level. The new Illinois act setting up a system for giving the county boards the main implementing

powers. This new act has the potential to preserve large tracts of agricultural land fairly permanently, and should be carefully reviewed as a possible means of action in the region. Other forms of local control not discussed here should also be reviewed, to determine if any other approaches would pertain specifically to this region. If local controls are not adequately identified and implemented, the state or federal levels may become alarmed at the excessive consumption of land and feel compelled to initiate controls from above for the state or national interest in the agricultural land or energy demands involved.

A summary listing of the instruments available to guide growth is on page 24 .

How Land May Best be Distributed for Environmental and Economic Advantages

Effingham County has excellent opportunities for growth. The interstate system and the railroads have allowed the county to reach out to more distant places for exploration of local goods, employment, travel, and recreation. They also allow greater movement into the county, in the form of imports, new employment centers, more public services, and new residents. The area is largely undeveloped, but has plenty of possible sites for development, either residential or commercial-industrial. ✓ The county, like the rest of the region, is eager for a more varied and stable economic base. They are looking to industries and commercial firms from outside the county or regional borders to locate there and improve their local or regional economy by increasing the job supply. Although this is a very important and effective way of improving the economy, it is not the sole direction to follow.

There exists increasing potential in the woodlands of the region to expand the economy from within. Fayette County is already one of the leading timber-producing counties in Illinois; the others in the region have similar potential. The areas along the many streams and rivers are generally covered with saleable timber. If properly managed these areas

INSTRUMENTS USEFUL IN RESOLVING CONFLICTS

LOCAL OR REGIONAL: preparation of policies for future growth
and its regulation, by:

deed restrictions, individually imposed

agricultural districts

preferential taxation

interim controls (moratoria on growth)

building codes

zoning ordinance

subdivision ordinance

REGIONAL, STATE, OR FEDERAL LEVEL:

purchase of development rights

large-scale studies on present and future land use

state/federal matching grants programs

This is a listing of several instruments that may be
applied to the South Central Illinois Region. It is not com-
plete, nor does it imply that all the steps shown must be taken
to be effective.

could be cropped for timber and associated wood and paper products. Industries engaged in the manufacture of wood or paper products would be ideally located here, and would be a ready source of local employment. In this way, the region would be more fully taking advantage of its natural resources without adversely affecting the environment if the timbering industry is properly managed. Before engaging in any definite timbering process, detailed study of other wooded areas and their procedures is advised. The Soil Conservation Service would be helpful in locating areas of potential erosion that would require special management efforts. Forestry associations would also be of assistance in setting up a large-scale production process. The initial investment in a forestry operation is high, and the waiting period for new timber crops is long, but once established, it can be a viable industry with the ability to attract further related uses into the region.

Energy development is another area of great potential in this region as a whole. Advancements in reducing high sulfur discharge of Illinois coal may place a renewed demand on mining. Mine sites should first be identified, and all possible effects on the environment from the mining process itself should be evaluated. Laboratory sites may wish to locate near the mines for convenience, as well as other industries that may wish to make use of the ready energy source.

Multiple use facilities seem to have good potential at many of the existing and proposed water storage sites in the region. Several reservoirs have already been approved or constructed, and their newly-formed shorelines are attractive for residential, recreational, and industrial growth. The Lake Sara plan is an excellent example of multiple uses planned to develop and perform in harmony. Recreation is becoming an important pasttime nationwide, and thus facilities and land areas devoted specifically to **recreation** are being demanded. Different types of recreation can be offered in this region and county. They include swimming and beach acti-

vities, picnicing in the woods, hiking along nature trails, open playing fields, and camping areas. Some types of recreation mix well with others, while some require wide expanses of unpopulated land, and all are available in this region. One possibility might be the formation of linear parks along the major rivers and creeks.

↓ Urban growth will occur in Effingham County whether any controls are initiated or not. If uncontrolled, growth is most likely to occur generally along the main roads, the interstates, and especially at their interchanges. Residential growth will most likely be low-density "suburban-rural" sprawl. Industries may well locate in undeveloped areas where wide expanses of land are available to construct parking lots for employees and roads to get them there. With growth policies determined and control operations being enforced, industries can be guided to cluster their development into specified industrial parks, and residential areas may be coordinated nearby. This would help ease the energy requirements of extensive utility lines to sprawling residential lots and out-of-the-way industries, and by reducing the mileage of many employees. Carpools could be formed or bus service may be possible if sufficient numbers of people live in and work at similar locations.

↓ Urban growth is also going to increase in the established towns. The county or region may wish to have the lands immediately outside incorporated boundaries under controls that would minimize leap frog development. Although some land will probably need to be developed and annexed into the cities, each town and the county or region should try to minimize the amount of agricultural land which is converted to urban use.

The secret to a healthy economy seems to be diversity. The region or county may look at all the proposed alternatives and decide, according to its particular resources and own needs, what mix of industry and growth will best suit the area. Other areas, in addition to those discussed here, may become important local concerns that require attention too. After

studying the resources of the area and the needs of the people, the region or county will be able to identify its own plan for economic and ecological land use.

Footnotes

1. The Loss of Agricultural Land, Blobaum, Roger, A Study Report to the Citizen's Advisory Committee on Environmental Quality, Washington, D.C., 1974, p. 16
2. Ibid., p. 9
3. South Central Region Resource Digest, Effingham County Planning Studies, 1970
4. SCR Resource Digest, p. 20
5. Ibid., p. 22
6. Ibid., p. 22
7. Overall Economic Development Plan for the South Central Illinois Region, 1974, p. II5
8. Ibid., p. II5
9. Ibid., p. II4
10. A Development Plan For Lake Sara, Effingham County
11. Effingham County, Illinois, 1970, Planning Studies
12. Ibid. p. 63-64
13. Ibid., p. 179
14. Ibid., p. 198-199
15. OEDP, Appendix II
16. The Loss of Agricultural Land, p. 24
17. Ibid., p. 24
18. Ibid., p. 25
19. Ibid., p. 25
- 20.
20. Agricultural Areas Conservation and Protection Act
21. "Bill Would Force Use of Soil Conservation", The Courier, Champaign-Urbana, Illinois, October 24, 1975, p. 6
22. The Loss of Agricultural Land, p. 26
23. Lake Sara Plan, Appendix A

Water Reservoir Development

Planning for reservoir development is a means for rational utilization of potential water supply. Reservoir development portrays characteristics of resource development in that it:

- 1) requires extensive land use
- 2) increases the supply of water as a resource
- 3) directly induces or restricts the development of other natural resources
- 4) indirectly induces or restricts urban forms of development.

A study of these impacts on land use can enable analysis of reservoir development.

Examined here is the case of Effingham County. Eight potential reservoir sites within the county have been identified by the Illinois State Water Survey. The Water Survey report, Potential Surface Water Reservoirs of South-Central Illinois (1966), gives additional data related to each site. Pool area acreage and net water supply yield data will be used here. See map 3.

It may be assumed that two levels of water reservoir development in the county would provide a base for studying impacts of water reservoir development. This study assumes the possibility of maximum development. On this level, the development of all eight potential reservoirs would provide the data base for the impact study.

On the "conservative" level, not used here, one potential reservoir is selected to enable impact study. It would focus on those impacts specific to locational land use characteristics. It would have countywide impacts as well in that it would induce a growth center. This level would be a beginning step in actual application of analysis.

Pool area is the land actually covered by surface water of the reservoir. Use of this land is thus completely restricted. Some additional land about the site must be preserved to protect water storage capacity of the reservoir. Since this land is not water locked it may have limited use. With the acreage of the pool area given in the Water Survey report, an estimation of additional area withdrawn can be made. The sum of this would clearly show an impact, the direct displacement of land.

A small portion of this land use measurement, that covered by the water of the tributaries upon which the reservoirs are to be located, has not been separated from sums of area withdrawn.

A generous estimate of the total area withdrawn was calculated by multiplying given pool areas by a factor of three. Additional acquisition land would thus comprise two thirds of this sum. Pool area for all eight sites covers approximately 2500 acres. Total acquisition area covers 7500 acres. Hence, allotted shoreline area is nearly 5000 acres.

The Army Corps of Engineers' method suggests a much smaller estimate of acquisition area. Using a 100 foot easement around the shoreline, multiplied by the total given shoreline length of 63 miles converted to feet, results in 32.7 million square feet or an 800 acre area at most. This amounts to one sixth of the 5000 acre estimate.

If in Effingham County the estimated 7500 acres were withdrawn from the given acreage of 307,776, then no more than 2.5% total land would be preempted from some sort of land use. See Table I.

Cropland, because of incremental soil erosion problems, pesticide and fertilizer contamination with lack of government control in such matters, is an objectionable form of land use within the acquisition area of the water reservoirs.

Soil erosion and the sedimentation created by erosion can substantially reduce the storage capacity of a reservoir over a short period of time. The relationship between sediment losses and reductions in yield had not been calculated by the Water Survey in their 1966 report. This is because expected loss in capacity from sedimentation was less than 1% per year for existing statewide reservoirs. This is true for the Effingham County case as well. Maximum sedimentation permitted by the Water Survey criteria is 2% per year.

According to an inspection of mapped land and soil ratings found in the 1970 Effingham County Comprehensive Plan it appears as though no prime cropland actually exists upon the reservoir areas. The descriptions from reservoir site field surveys in the Water Survey report also bear this out. Most soil on these areas is that which on the chart of "Highest and Best Land Use Within Natural Land Capabilities"¹ was rated as Unit 4 and 5 soil. That soil rated poor for agricultural purposes. Prime agricultural land fell under the Unit 1 rating.

Woodland, covering 28,053 acres in the county, is much more affected. The tributaries are typically surrounded by timbered land. The Water Survey site descriptions include mention of woods on all but site 8. The displacement of 7500 acres total by the reservoirs would not restrict timber growth from those 5000 acres not covered by water. In fact, natural land cover which includes timber provides needed protection from soil erosion hazards.

The United States Forest Service Forest Division designated 20% of the South-Central Illinois Region as potential commercial woodland. Whether commercial timber production would be induced by reservoir development might be determined. The problem of ownership has been mentioned as a possible barrier to increasing timber harvesting due to the small quantity of timberland each owner has. Land ownership transfer of the acquisition land may place woodland ownership under one public body.

Where woodland does not exist a study of the soil potential for timber growth could be made. Unit 4 soil is rated excellent for woodland. The potential reservoirs map located reservoir sites 2,3, and 4 and Lake Sara on or along Unit 4 soil.

Timbered surroundings improve the aesthetic qualities of the land. The advantage to recreational potential here illustrates the third aspect of the multiuse principal recommended by the Overall Economic Development Program. The three uses were water supply, timber production and recreation.

The likelihood of use of the water supplied is important. Supply must be adequate to serve the needs of future growth which could be estimated with population projections. Development of water supply has dynamic effects of inducing growth as happens generally with other types of public utility improvements such as highway development.

Water storage capacities of the eight sites may be compared to the City of Effingham's Lake Sara reservoir and to Altamont's Altamont reservoir. Studies have shown that demand for water supplied has good relation to population size.² Table III graphs the gallon per capita per day (gpcd) ratio for water use in typical Effingham County municipalities. The average estimate came to 45 gpcd.

The net yield for 40 year recurrence intervals at half capacity in units of million gallons per day (mgd) was used here for supply studies for the eight sites. According to the Water Survey report:

For each particular reservoir site, the analyzed stream gage having watershed runoff characteristics most similar to those of the site was employed to determine gross yield. Gross yield was determined as the percent of mean flow a given reservoir could sustain for droughts of various recurrence intervals. Adjusting gross yeild to net yield involves two factors: 1) losses due to seepage and 2) losses due to evaporation. In addition to these factors, loss of capcity to sedimentation will lower the yield.³

Evaluated singly, some reservoirs may show significant variations that might effect future selection. Table II shows the relationship between mgd and 100 acres of acquisition area. Reservoir sites 3, 5, and 8 show the highest relation. Sites 4 and 6 show the lowest and thus the less efficient relation. This seems to be related to size since larger reservoirs are also most efficient in water supply yield.

The total mgd of the eight sites is 7.9 mgd. Lake Sara serves a population of 9,500 approximately at a maximum of 2 mgd. As gpcd this is under 200 gpcd, yet a rather large ratio. Using this ratio, four cities with population and industrial development at levels similar to the City of Effingham may be supplied.

A ratio of 100 gpcd was cited by an engineer⁴ as useful for estimating supply needed for future urban growth. If Lake Sara potentially could supply 3mgd, then at the 100 gpcd ratio, population served could get as high as 30,000. This is an increase of over 10,000. The eight other reservoirs, if maximum development were to be undertaken, could supply 79,000. A total population increase in Effingham County that could be accommodated with this water supply is 100,000.

In other South Central Illinois' counties:

Fayette County with six potential sites yielding a supply of 8.1 mgd from all reservoirs could serve an additional population of 80,000.

Marion County with thirteen sites yielding 32.0 mgd could serve 320,000. Just site #13 East Fork of Kaskaskia River with 14.3 mgd could serve 143,000.

The total additional population of the three counties may reach 500,000 if maximum reservoir development were to be undertaken. If one half of these reservoirs were developed, approximately 250,000 population could be supplied.

From the case study of Effingham County, it can be assumed that the county can go high in water development. To induce and supply expected industrial development is in line with SCIR goals for economic growth.

Conflict of interests with cropland production was not evident. Other potential land use management conflicts might involve regional interest in industrial development and state interest in recreation areas. If controls are implemented both interests might be satisfactorily served. One example of this is zoning regulations which allow recreation along shoreline and industrial land uses that use the water supply located elsewhere.

A proposed State Bill⁵ for the control of soil erosion problems coming from privately owned farms is another land use control that would protect the interests of water resource suppliers. Sedimentation is now considered a form of pollution, thus it falls within Environmental Protection Agency interests at the federal level for water quality control.

Illinois State Water Survey criteria for site selection mainly involved physical characteristics:

- 1) physical characteristics necessary to impound water
- 2) runoff from the watershed in sufficient quantities to provide storage for beneficial use plus anticipated losses
- 3) relative freedom from man-made or natural obstructions.

Further evaluation would include the economy of the region and a cost-benefit analysis of each site. The social and political environment as it changes in time should also be considered. An evaluation of water development in relation to other natural resources has been started in this study. All of these must be dealt with prior to planning water reservoir development.

The Water Survey calls for further inventory and field investigations of each site and more detailed engineering to establish the feasibility of any particular project. The effect of a project on economic development and conservation of resources connotes the need for incorporation of such studies into the work program and the land use element of the community development plan required by the Department of Housing and Urban Development by fiscal year 1977.

TABLE I: Water Reservoir Site Acquisition Area--Effingham County

Site	Pool Area	Additional Land	Acquisition Area	Watershed (sq.mi.)
1 Trib. Wolf Creek	90 acres	180 acres	270 acres	2.3
2 Trib. Big Creek	45 "	90 "	135 "	1.0
3 Trib. Salt Creek	255 "	510 "	765 "	6.7
4 Shoal Creek	50 "	100 "	150 "	1.8
5 Little Salt Creek	660 "	1320 "	1980 "	22.5
6 First Salt Creek	165 "	330 "	495 "	10.6
7 Ramsey Creek	330 "	660 "	990 "	10.2
8 Limestone Creek	900 "	1800 "	2700 "	12.8
Total Acreage	2495 acres	4990 "	7485 acres	67.7 sq.mi.
Lake Sara	735 "	----	----	11.81
Altamont	25 "	----	----	2.00

Pool Area is the amount of land actually covered by reservoir surface water.

Additional Land was calculated for this study as shoreline land withdrawn for limited uses complementary to the water reservoir. It is estimated as twice the acreage of the pool area.

Acquisition Land is total land withdrawn from general use by water reservoir development. This was estimated by using the 1:3 ratio, assuming three times as much total land is used by the reservoir development as is used by the pool area itself.

Watershed Area has been determined by the Illinois State Water Study as area over which runoff water will be draining into a particular watercourse supplying the reservoir.

TABLE II: Water Reservoir Area Covered by Woodland
and Net Yield of Water Supply (for 40 year
recurrence interval at half capacity).

Site	Acquisition Area	% Woodland	mgd	mgd/100 acres
1	270 acres	50%	.2	.074
2	135 "	60%	.1	.071
3	765 "	60%	.8	.104
4	150 "	100%	.1	.066
5	1960 "	75%	2.5	.126
6	495 "	100%	.3	.060
7	990 "	60%	.9	.090
8	2700 "	--	3.0	.111
Total	7485 "	--	7.9	.702
Average	---	--	1.0	.088
Lake Sara	735 "	--		
Altamont	25 "	--		
Total Effingham County Acreage: 307,776				
Population Effingham County (1970): 24,608				
City of Effingham: 9,458				

TABLE III: Water Use for Effingham County Municipalities
in gallons per capita per day (mgd/population)

City of Effingham--population 9,500 200 gpcd

Engineer's estimate 100 gpcd

45 gpcd (Effingham County average--population 24,608)

73 gpcd (Altamont--population 1,830)

44 gpcd (Teutopolis--1,460)

23 gpcd (Dieterich--730)

44 gpcd (Edgewood--540)

58 gpcd (Beecher City--490)

37 gpcd (Mason--360)

34 gpcd (Montrose--350)

27 gpcd (Lake Sara-unincorporated--250)

24 gpcd (Watson--225)

* with additional water supplied by the eight potential water
reservoirs:

7.9 mgd / 100 gpcd (engineers' estimate)
additional population of 79,000 could be
supplied.

Footnotes:

- 1) "Highest and Best Land Use Within Natural Land Capability"
Table 22, Effingham County Planning Studies, (1970), 2.
- 2) So, Frank S., "Water and Sewer Systems", Principals and Practices of Urban Planning, 232 (1968: International City Managers' Association: Washington D.C.)
- 3) "Streamflow and Water Yields", Illinois State Water Survey, Potential Surface Water Reservoirs of South Central Illinois, 9 (1966: Urbana).
- 4) Consultation with civil engineer,
- 5) Illinois State Bill proposed 1975.

Bibliography:

Effingham County Planning Studies (1970) (comprehensive plan)

Illinois State Water Survey, "Report of Investigation 54",
Potential Surface Water Reservoirs of South-Central Illinois, compiled by Dawes, Julius H. and Terstriep, Michael L., Urbana, 1966.

SECTION 2

Approaches to Water Supply

Volume Two

Section Two -- Intergovernmental Approaches
to Water Supply

by Larry Debb

A. Background of the Problems

Increasing demand for water is putting pressure on limited natural supplies. Rising capital and operating costs of water treatment plants require rethinking of the present system of small municipal plants.

B. +A Technical Approach to Problem Resolution--

For the Effingham area within the South Central Illinois Region, a technical solution is proposed to the question of efficient organization of economies of scale.

C. Political Implications of the Proposal

The desire for municipal autonomy is recognized by allocating supply and treatment responsibilities to the largest city, Effingham; by creating a jointly controlled water service agency to handle trunk line distribution of treated water; and by retaining retail distribution system responsibility with each city.

State coordination of area plans and programs is likely to be achieved through such instruments as the Water Permit for large areas and the Certificate of Necessity for major capital investment. Application of these instruments will require regional review procedures prior to state agency policy decisions.

D. Analysis of Intergovernmental Relationships

A chart has been prepared to show the intergovernmental relationships which will exist if the proposed approach to water management is put into operation. It is evident that the Regional Commission could play very important roles in support of the local governments in Effingham, Fayette, and Marion Counties.

A. Background of the Problem

Man's demands for water are incessant. He needs water for human and animal consumption, agriculture, waste dilution and disposal, industry, power generation, and recreation. These ever-increasing demands have posed vexing problems for societies since the dawn of civilization. Although contemporary water needs have become extremely complex, all water problems are essentially a question of quantity. Quantity involves insuring that a particular place has adequate water to meet its needs and is protected against too much water at any one time.

The total quantity of water available in the United States is constant. For centuries, 30 inches of annual rainfall has been producing an average of 4,300 billion gallons of water per day. Approximately 14 percent of this water, about 600 billion gallons per day from both surface and ground sources, is usable.

The demands placed upon this constant supply have mounted steadily. In 1900 less than 8 percent of the 600 billion gallons per day was needed for all water uses. Today's requirements exceed 300 billion gallons per day.

Population growth and increased per capital consumption will push water use even higher in the future. In rural urbanizing areas, more people, a higher standard of living, new household devices, and industrial developments are likely to boost per capita

consumption 25 percent in the next 20 years and perhaps by as much as 60 percent by 2000. Before the end of the century, it is estimated that daily consumption for all purposes will exceed usable supply. This problem is definitely seen in the South Central Illinois Region (SCIR) and in particular in the Effingham area. By itself, the prospect of demand outrunning total quantity is no cause for alarm since an increasing amount of water is used more than once. The cause for concern is in the need for more effective management of water resources.

Prime responsibility in the United States for the provision of public water has traditionally rested with the local units of government. The earliest efforts to provide water for the cities were undertaken by private companies however due to large initial outlay of capital and heavy subsequent expenditures in maintenance and extension prospective profits of the companies were rarely great enough to induce the directors to build systems adequate to provide all needs. Because of this in 1801 Philadelphia put the nation's pioneer municipal public water works in operation. This problem is appearing again in the rural urbanizing areas of our country.

In the Effingham area the major problem facing the local governments stems from their failure to keep pace with the demands of a growing population and an increasing per capita rate of water use. Responsibilities for the supply of water

have been fragmented, particularly in these rural areas. This fragmentation has resulted in public health hazards, inefficient development of small facilities, and a failure to achieve economies of scale in utility development. In the future much more than in the present, development based on individual water systems will be a problem. These problems are primarily governmental rather than technical.

This report will examine the organization of an economically feasible plan that will use technical solutions to solve the problem of water quantity, purification and water distribution in the South Central Illinois Region. This requires an examination of intergovernmental responsibilities at the local, state, and Federal levels for planning and policy determination and management of water systems.

In the county of Effingham there are nine water purification plants located in nine of the major cities. (see map 1) Many of these plants are now unable to purify enough water to fulfill the needs of the area that they service. In the future more cities will be seeing this problem. The main problem then is that the demand for purified water is going up as are the large initial outlays of capital needed for construction and the heavy subsequent expenditures in maintenance and chemical costs. As of now these rural urbanizing areas of Effingham have water purification responsibilities fragmented between the local municipalities, therefore failing to achieve the benefits of economies of scale.

For the general public economies of scale are probably the most appealing arguments for areawide approaches to the water problem. Per capital investment for a purification system to service half a million people is 75 percent that of a facility serving 50,000 people. There are also considerable savings in percapita operating cost with larger facilities.

Economies of scale could best be achieved by development of an areawide water system in this Effingham area. Except in special cases, small municipalities cannot find a satisfactory long-range solution to their water problems on an individual basis. A central feature of this solution is a single purification plant and an area distribution system.

This central water purification center would produce the water for distribution by a "Water Service Agency." (See chart 1) This agency would be made up of all those municipalities that either want to be a part of the system because of the economic benefits or municipalities that due to their geographic location with respect to the central purification center are directed by the State to join.

This water service agency will have five (5) major functions:

1. To service as a spokesman for the area or water service agency in dealing with higher governmental units on water matters;
2. To provide for major line distribution of water for the water service agency area;
3. To coordinate all of the activities of all the communities within the Effingham water service agency affecting the areas water projects;
4. To study and recommend in regard to policy concerning priority and allocation of water with the help of the State water control "tools" for the area;
5. To review and coordinate locally requested projects having water service area wide significance.

The Water Service Agency would initiate its program by defining the problems of the area and taking an inventory of the needs of the area. It would set up goals and objectives for the area based on projections of population and future needs. The agency would procure the financing for the construction of the trunk lines from the central purification point to the outlying municipalities and also setup programs and operations

that are necessary to serve the member cities.

C. Political Implications of the Proposal

Each of the cities involved must weigh the advantages and disadvantages of the proposal. The scheme proposed would retain the present responsibility for the major operating elements with the cities. The only new element required is a trunk line distribution system and this would be administered by an agency controlled by the member cities.

Effingham would under contract expand and maintain a central supply and treatment plant. This would have major scale efficiencies for Effingham and all the cities involved. It would be an efficient use of state and federal grants.

Effingham and all other cities would continue to operate distribution systems within their own jurisdiction. Control of development and retail rates would remain with each city.

Efficient of public investment requires: participation of all cities who would benefit from joining; and acceptance of major new water uses only when supply can be assured. Their determination of efficient cannot be made at the local or regional level. Only the state has the jurisdiction and authority required. If the state does initiate water development management through water permits or certificates of necessity, conflict will arise over some decisions. An intergovernmental review process will be required to give appropriate consideration to all sides of

an issue.

D. Analysis of Intergovernmental Relationships

This water service agency would fit into the governmental structure as seen as in Chart II. This proposal is an attempt to strike a balance between the importance of preserving local institution and the need to attain a high level of program performance. However, the proposal has to be reviewed in the context of federal, state and regional programs.

The federal government has been an important source of capital grants for the large investments required in major water systems. To assure sound investment, the federal government has required that state water plans and regional comprehensive plans be prepared and that grants be made only to projects which conform to these plans.

The States occupy a strategic role in the solution of water problems. As the creators and overseers of local government, they can grant or withhold the governmental and financial tools necessary for areawide problem solving. Policies relating to allocation and regulation of use are extremely important to the management of water supplies and the control of inefficient construction and operation of purification plants for small community water systems. Through the use of such tools as a certificate of necessity and state granted water permits control may be exercised by the State. The State's greater geographical area,

and accent more diversified water resources make this a more logical unit that the sub-state, regional or community level units of government for comprehensive and development policy on the basis of drainage basins.

In the 1973 Fiscal and Economic Commission report from Springfield a proposal was put forth that would create a five-member Water Resource Authority to oversee all studies planning program implementation and allocation of Illinois water. This water resource Authority would also act as the final judge for the issuance of water-use permits to users of more than 5,000 gallons a day. Without a permit, anyone wanting to use large quantities of water, for whatever purpose, could not do so.

(Article by Gerald L. Conner in the Lindsay-Schaub Newspaper comments by William C. Ackermann, Chief of State water survey.)

Certificate of Necessity

This would be a tool that the state would use to prevent an inefficient use of public funds by communities which should join in an area wide approach to solving the water problem. With this tool the state could encourage areawide water districts by a policy of withholding from municipalities that did not join federal or state monies for the purpose of construction of individual water purification systems. This certificate would operate in a manner similar to the procedure in the health field.

The third level of this four level governmental structure is the regional unit or the SCIR. This unit of government will

guide and accomplish a coordinated, adjusted and harmonious development of the water service agency. This planning commission now encourages the cooperations of all the political subdivisions within the region on any matters that concern the region as a whole or major sub-areas with the region.

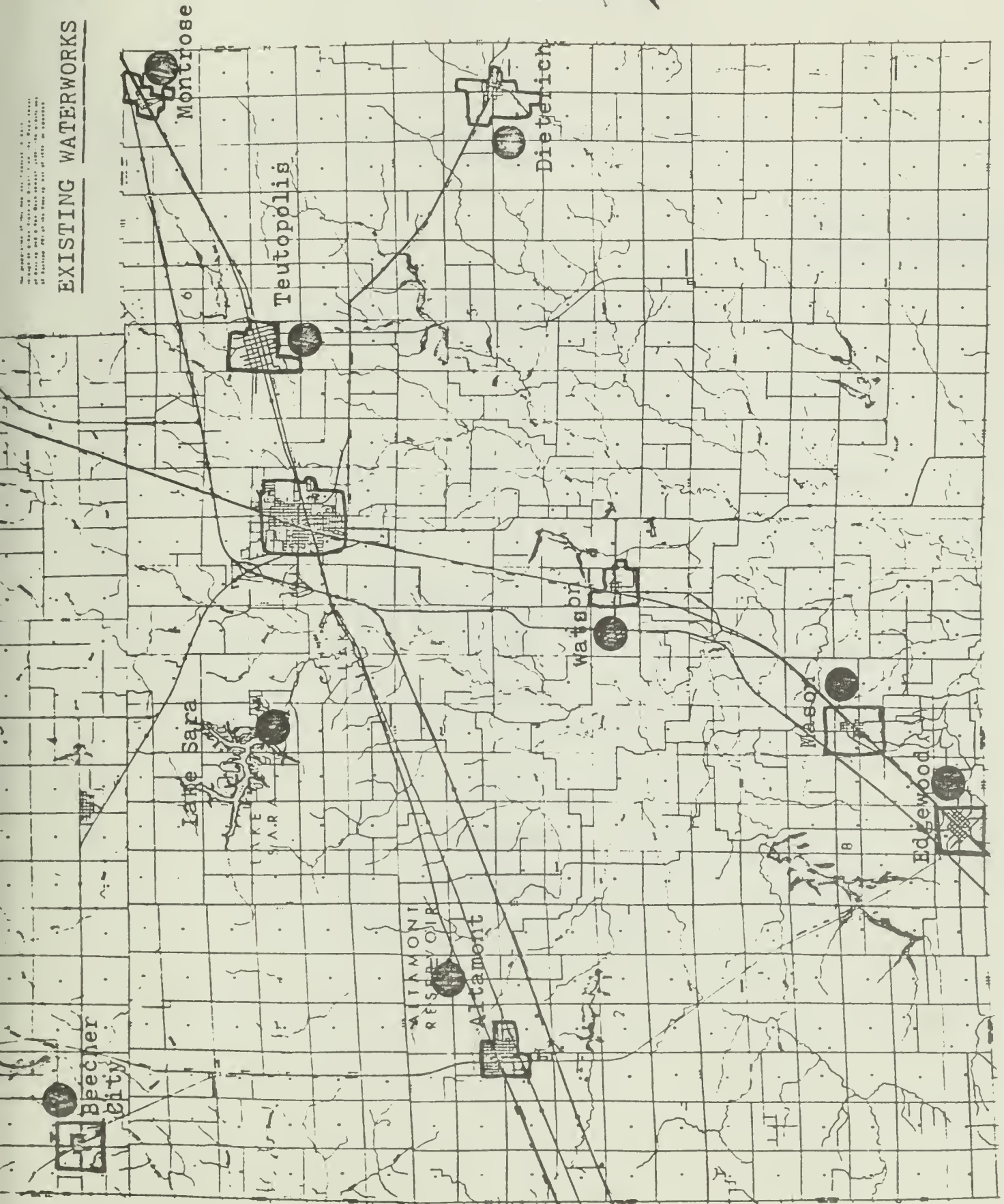
Another function for which the Commission is responsible stems from the Intergovernmental Cooperation Act of 1968. Circular A-95 of the Office of Management and Budget, pursuant to Section 401 of the Act, furnishes guidelines for review, evaluation and coordination of federally assisted programs. To implement the policies of Circular A-95, the SCIR Regional Planning Commission was designated by the Office of Management and Budget as the Clearinghouse for grants to local governments within the region. This would include the proposed water agency for the Effingham area.

Therefore the main purpose of the SCIR in the planning of water systems for the Effingham area would be twofold. It will be available to assist the different local governmental units in analysing a new water service agency, and in the boundaries of this new district. It will also review devices that call for state or federal grants of funds.

In fulfilling these roles, the SCIR Commission can provide an efficient approach to staff work required by the cooperating local governments. The Commission can also act through its professional staff to represent the local governments in nego-

tiations with state and federal agencies. These are the roles which make ~~the~~ Commission a useful partner with the local governments which it serves.

EXISTING WATERWORKS MAP 1

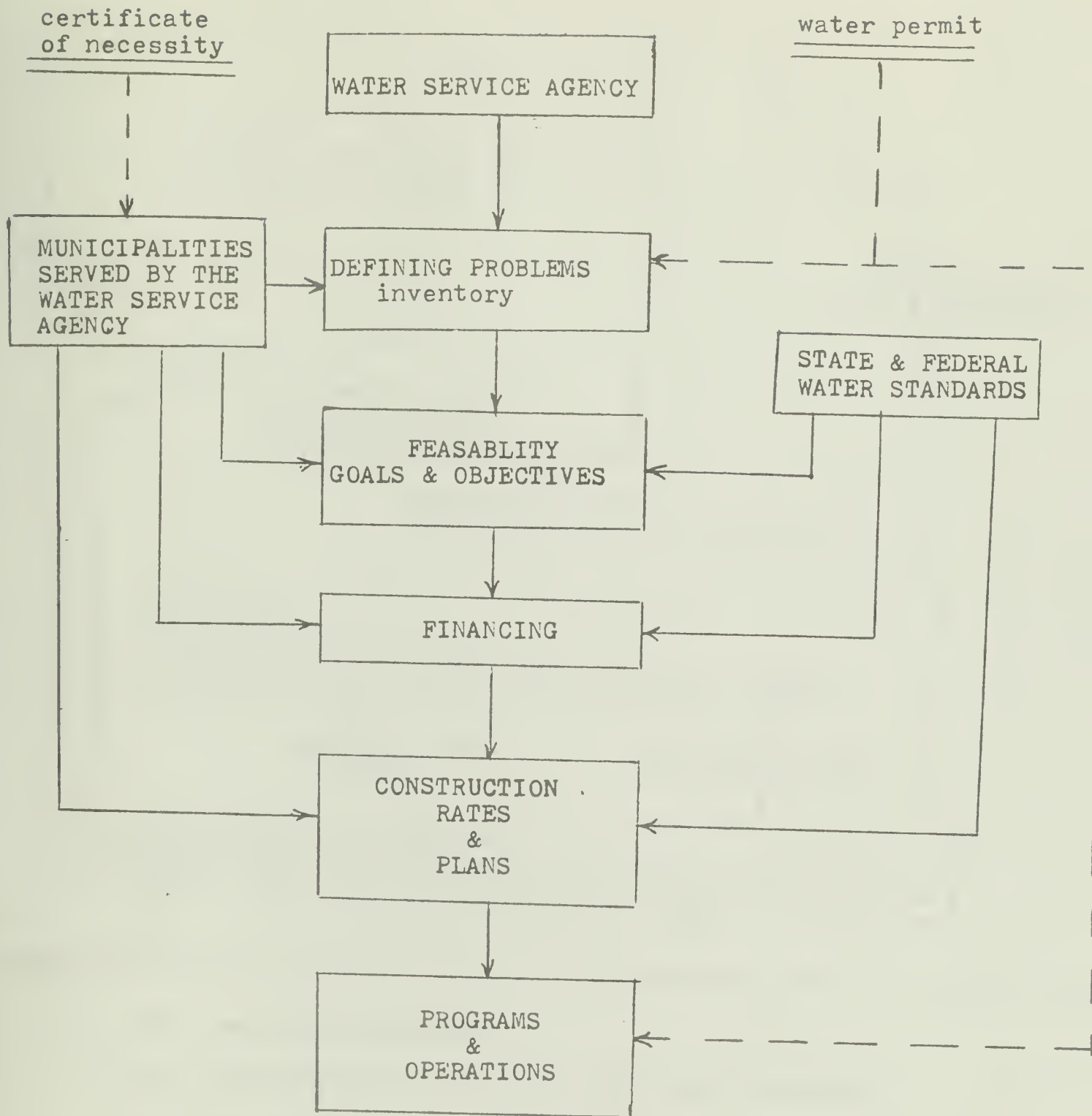


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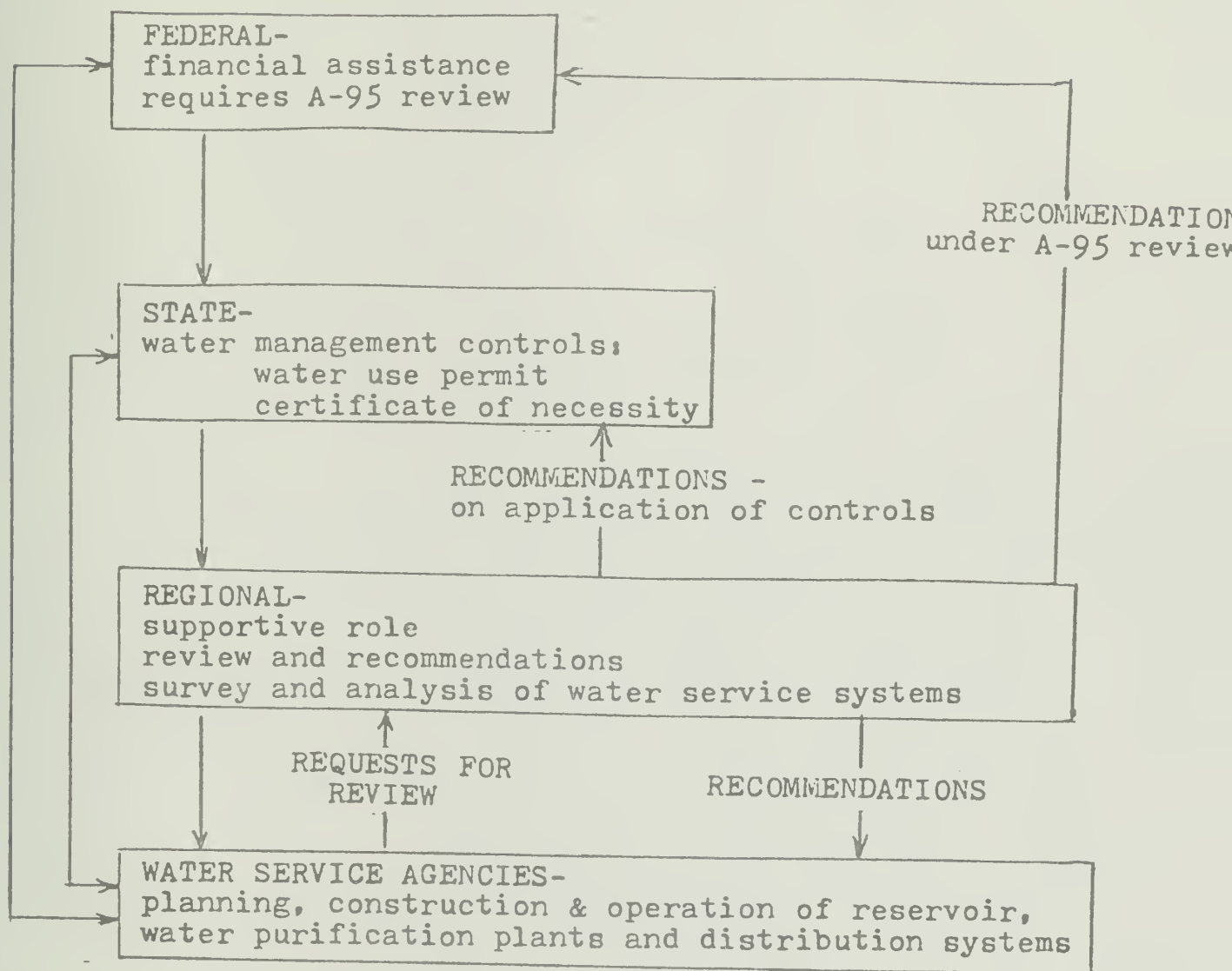
CHART 1



FOUR LEVELS OF GOVERNMENT

IN WATER STORAGE, TREATMENT AND DISTRIBUTION

- 14 -



for the EFFINGHAM AREA-

City of Effington- reservoir and water treatment

Water Service Agencies- wholesale of water and
water distributionCities within area- retail sales and distribution
of water



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